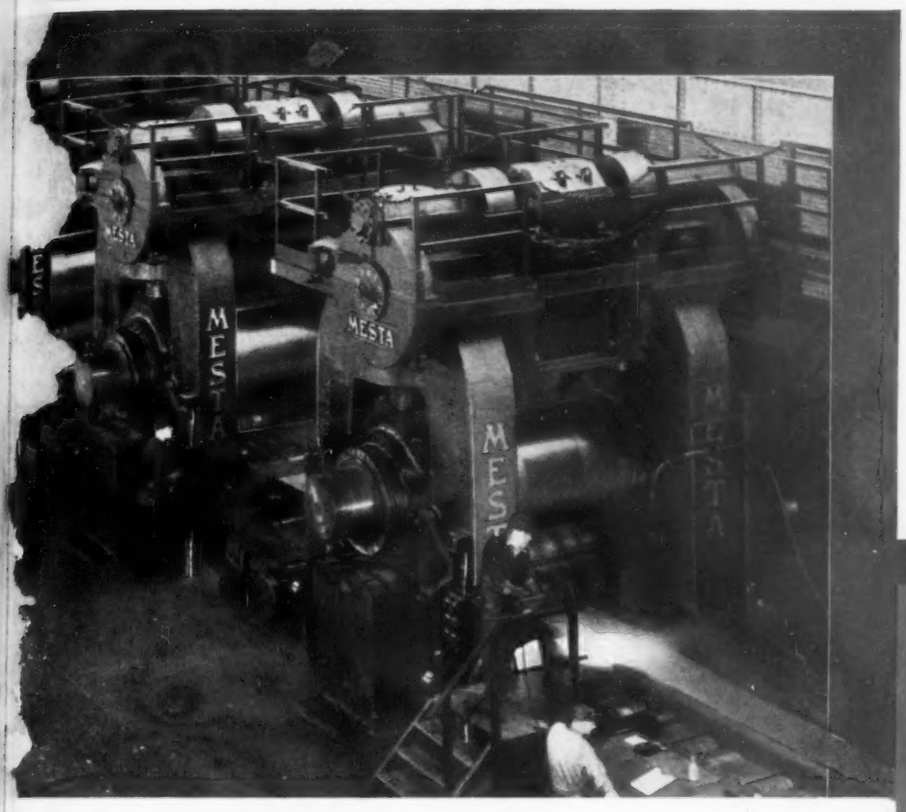
STEEL

JUL 11 1932

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW



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CARNEGIE CRANE WHEELS

Volume 91 Number 2

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

AMERICAN steel by American workmen for American structures built with American money is the banner the steel industry proposes to unfurl on ramparts which no foreign steel offered below the cost of production can scale. Behind this double-barreled program of an embargo on dumping and a monopoly for domestic steel in public construction stand two organizations—National Association of Flat Rolled Steel Manufacturers and American Institute of Steel Construction—enrolling a great majority of the big names in the structural fabricating and sheet and strip rolling industries (p. 11). Foreign dumping dementia . . economic madness . . imports crippling domestic industry . . unprecedented competition . . 600,000 employes imperiled . . increased unemployment and destitution . . crucial situation—by such strong language does the industry attempt to jolt congress.

British Thrust an Indirect One

From the Continent, enjoying a water rate of $3 or less to New York, has the flood of low-priced foreign steel principally been loosed, but the British are making a flank attack through Canada. Prior to the economic conference at Ottawa, British steelmakers are conferring (p. 12) with Canadian consumers; finding, however, that the dominion is steeped in American specifications and to divert business from the states the British industry may have to revise its practice. . . . While striking out for business in Canada the British are compelled to protect their rear from the Continent, tasting the competition so bitter to America, and the new tariff, raised to 33 1/3 per cent on practically all iron and steel products, is being extended (p. 61) to October.

No Barrier to Foreign Trade in Ideas

Fortunately, research and technical progress know no boundaries. The rest of the world is learning from a Canadian manufacturer of steel transmission towers for power lines how to control gas-fired galvanizing kettles under all load conditions. A capacity of 10 tons per hour per kettle has been reached (p. 23); a thermocouple in the combustion chamber is controlled by a thermocouple in the pot. . . . Another departure in galvanizing is the installation of new hot dip equipment in an eastern Pennsylvania plant (p. 37) to obviate recutting of threads on bolts, nuts and turnbuckles after galvanizing.

Ammunition for War on Embrittlement

Not zinc impregnation but cold working stress in punching rivet and bolt holes and the temperature incident to galvanizing are largely responsible for embrittlement of hot galvanized structural steel (p. 30), and on this basis the American Society for Testing Materials has promulgated new practice. . . . As for a number of weeks, demand for structural

Steel flies the air mail! Single engine planes being assembled by Boeing Airplane Co., Seattle

steel continues relatively larger than that for other finished products (p. 43), supported in large measure by the public construction from which foreign material would be barred, and regardless of differences between the White House and Capitol Hill, some additional hundreds of millions for bridges and postoffices are in prospect.

Auto Steel Needs Freewheeling Away

Still second, but a poorer second, in point of steel requirements is the automobile industry. Even Ford is relaxing on the accelerator, and for July and August curtailed schedules have been ordered. Chevrolet and Plymouth also having slackened, July assemblies of the industry will certainly be below June, and official statistics may disclose May as the first half peak (p. 17). But Detroit is not daunted; its disappointments are buried in plans for carrying on with new models. A new light Essex is now in production. Chrysler may do something spectacular with its Chrysler and Dodge lines. Buick is pricing material for its 1933 models.

A High for Stockholders, Low for Output

Just as the automobile industry is looking forward, so are small investors confident of the future of United States Steel. Never have strong boxes held so many shares of its common stock. Right now there are 187,409 stockholders, compared with 149,891 a year ago and 128,594 two years ago (p. 13). Only among owners of 1000 shares or more—and they are negligible—is there any doubt. . . . And this confidence persists in spite of the poorest showing in production since steelmaking attained its majority. In June, the daily rate of producing steel ingots dipped to 34,511 gross tons, an operating rate of only 15.96 per cent (p. 14), breaking through the low of 36,713 tons in the depression of 1921.

Affiliation: A Platonic Merger

Corrigan, McKinney Steel Co., producer of sheet bars, and Newton Steel Co., converter of them, set a new fashion by "affiliating," not merging, thereby consolidating manufacturing operations but retaining separate corporate identities (p. 13). Corrigan-McKinney's 31-year-old common stock structure—2500 shares of $100 par—also goes modern, each old share being exchanged for 500 shares of new $1 par. . . . United States Steel continues its adjustment in personnel, managers of its structural and pipe export divisions retiring on pension (p. 15).

How Engineers Are Carrying On

A large oil refining and distributing company is experimenting with nickel-clad gasoline barrels (p. 34). . . . Composition bearings installed on rolling mill rolls are claimed to lower the power requirement and increase the capacity of the mill (p. 32). . . . A new portable micropyrometer is unusually accurate in determining melting points and viscosity of metals and alloys (p. 26). . . . In reconstructing a blast furnace at Portsmouth, O., a sludge recovery system, zoned hot blast stove linings, electric mud gun, air mixing system and a selective stock distributor are among improvements (p. 27).

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

To the Editor:

The writer was very much interested in the article in your July 4 issue of STEEL showing a graph of steel production per capita.

Believing that you may be interested in placing your figures alongside those of residential floor space contracts awarded each month, I am sending a graph which was prepared by one of our subsidiaries.

It might be interesting to you to know that in estimating a minimum normal from your own graph and from the graph attached hereto an almost identical figure is obtained.

P. E. CRANE, President
Eljer Co., Ford City, Pa.

Note: The graph referred to in the foregoing letter shows the trend of square feet of residential space represented in building awards reported each month by the F. W. Dodge Corp. The trend for residential space thus shown is very similar to that of total building awards in 37 states reported by the F. W. Dodge Corp. and published in chart form on page 22 of the July 4 issue of STEEL.

The Editors

To the Editor:

The editorial on reciprocity in your issue of June 13 is a good discussion of the subject but I think there is an opportunity for enlarging on the thought and with even more directness.

Some of the large companies are selling their products on merit, but most of those with whom we come in contact seem to be trading orders for sales—a more or less arrangement of "you kiss me and I'll kiss you."

There also seems to be a growing movement of trading on family connections, and in such a way that the operating official who has to use the product has little if anything to say as to whether the product is as suitable for the purpose as others available might be. In many cases the question of merit is no factor at all.

PRESIDENT, "Engineering Co.,"
Illinois.

To the Editor:

Ours is not a large company. We have to sell on merit. It is very discouraging when we obtain an order by that method to have ———— or some other large company push us out of it by unfair reciprocity tactics.

I have a case in mind where we recently worked up an order from the operators to the vice president in charge of purchases. The president overruled his subordinates and gave the order to another firm for some reason that was not for the good of his company.

"EQUIPMENT MANUFACTURER"
New York

Embargo Alien Steel To End Dumping, Demand on Congress

SO MENACING are imports of foreign steel that only a complete embargo on dumping can cope with the situation and avert further disaster to the iron and steel industry and the 600,000 employes depending upon it for a livelihood, declares the National Association of Flat Rolled Steel Manufacturers, Cleveland, in an open letter and brief to members of congress.

Almost simultaneously, the American Institute of Steel Construction, New York, was urging its members to appeal to congress for restrictive measures to prevent the use of foreign materials in the building construction program embodied in the Garner-Wagner bill, which has caused a break between President Hoover and Speaker Garner.

The situation is beyond the control of the steel industry and has become so desperate that neither an adjustment of duties to compensate for depreciation of foreign currencies nor the application of the anti-dumping and flexible provisions of the tariff law afford a remedy, states the Flat Rolled Steel association.

Prices Demoralizing

Never have such demoralizing prices been made as in the reckless dumping of foreign steel in the United States today, the association charges. At prices which, with duty paid, are $10 to $25 per ton less than American producers can maintain, wire is being dumped into Chicago, bars into Detroit, and wire, bars, shapes, plates, strips and sheets along the eastern seaboard.

England, bulwark of free trade, has increased her duty on all steel products to 33 1/3 per cent, not in retaliation to the American tariff policy but to save her steel industry from the influx of cheap continental steel, so the association contends.

France is virtually embargoing steel through a system of license arrangements typical of whose effectiveness is a limitation of 80 tons a month on sheets from the United States.

Common labor is being paid only 75 cents a day or $19.50 a month by the most aggressive foreign producers and with American steelworkers wages already reduced 25 per cent or more and working only 20 per cent of the time, "any further temporizing with this menace will be fatal."

In Belgium, according to the association, the principal steelworks have turned their plants into public utilities for providing gas, electricity and power, giving them "a tremendous advantage in selling cheap steel." Despite the depreciation of the pound sterling and the increased British duty, Belgian producers under the lash of necessity to operate their municipal contracts have been compelled to absorb these handicaps, forcing French and German steelmakers to follow suit.

Not only does common labor in Belgium, for example, receive only 75 cents a day and rollers $1.75 to $2.25, but ship rates as low as $3 a ton from Antwerp to the United States obtain. Only slightly higher wage rates apply in France and Germany, where an export bounty averages 10 to 30 per cent.

Since 1921, the association points out, the United States has not exported more than 5.93 per cent of its steel production in any one year; in 1929 the maximum exported was 2,480,000 tons or 4.45 per cent of the 55,650,000 tons produced in that peak year.

Foreign Exports About Half

But since 1922, Belgium and Luxemburg with a maximum production of a little over 6,000,000 tons have never exported less than 2,471,000 tons a year.

In the last seven years British exports have averaged from 36 to 83 per cent of the total production; Germany, 26 to 47; France, 43 to 70; Belgium and Luxemburg, 69 to 76; compared with the 5.93 per cent maximum for the United States.

Much of the steel dumped in the United States is "cheap bessemer steel, usually quoted at $5 a ton lower than what is termed 'good open-hearth steel' by the makers themselves."

Galvanized sheets imported from

Domestic Steel for Public Work, Abbott's Doctrine

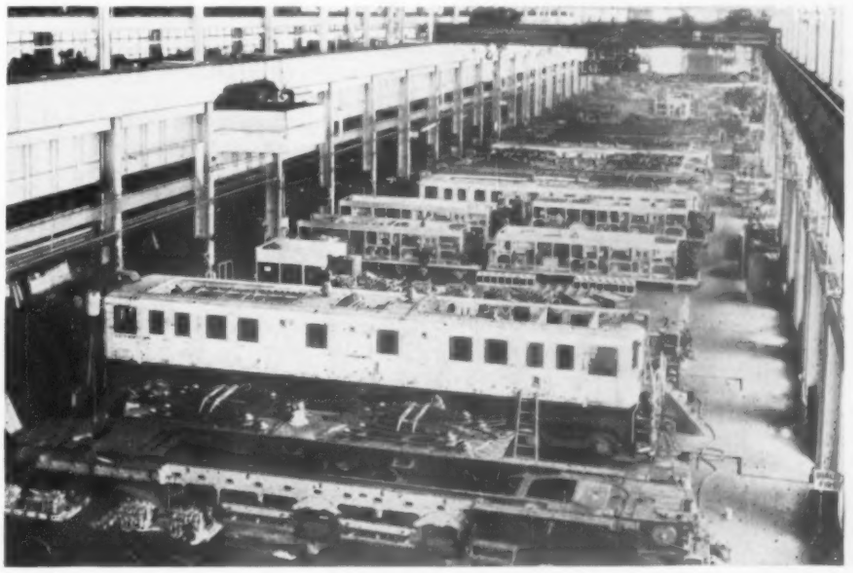
LEGISLATION enacted in the closing hours of congress is providing an extended program of public buildings and self-liquidating projects such as bridges, tunnels, etc., for the relief of unemployment by providing construction work as well as a market for construction materials.

If foreign building materials, particularly those imported at prices below the cost of production, are to be used the purpose of the legislation may be largely defeated. American rolling mills and labor should receive first consideration.

The structural steel industry should demand restrictive measures to prevent the use of foreign materials, and particularly steel, in the proposed construction program.

American steel produced by American workmen for American structures to be paid for with American money, is a worthwhile slogan at this time.

—Charles F. Abbott, Executive Director, American Institute of Steel Construction.



Acme Photo

DUPLICATES HINGE ON FEDERAL LOAN: These 3750-horsepower electric locomotives being assembled in the Erie, Pa., works of the General Electric Co. are for the Pennsylvania railroad's New York-Washington electrification project. A Reconstruction Finance Corp. loan is expected to expedite the project and release material and equipment orders now being held back

Belgium, of a well-known plant, average eight-tenths of an ounce of zinc coating per square foot. Says the association: "The absurdity of selling galvanized sheets at £1 sterling per ton or 16 cents per 100 pounds more than the price of black sheets, is painfully obvious."

"One can easily be internationally-minded and maintain a liberal attitude regarding the advantages of a free interchange of products until confronted with increasing unemployment and destitution among friends and neighbors due to importation of foreign goods," the association concludes.

"This is indeed what we have to contend with now, and it is to be hoped that any further temporizing with this desperate situation will be supplanted by determined measures to effect their remedy, which seem to exist only in an embargo against all dumping of foreign steel in the United States."

Sheet and Tin Plate Wages Are Reduced

Wages in sheet and tin plate mills having contracts with the Amalgamated Association of Iron, Steel and Tin Workers will be based on a 2.30c card for July and August, this being the average sales price of Nos. 26, 27 and 28 gage black sheets in May and June. The average for March and April also was 2.30c, but the new agreement recently signed, lowering the basic contract rates, results in a wage reduction for the various classifications of labor. The rates will be 6 per cent below the new base.

The Business Week In Washington

DETAILS of the tariff investigation on cast iron pipe, proposed by the senate, are being worked out and personnel chosen. The tariff commission will at least investigate costs of production in France, chief originator of imports to the United States, and possibly some other European countries.

□ □ □

In May, 8577 aliens left the country permanently, while only 2479 arrived.

□ □ □

Department of labor itself may try one of organized labor's proposals—a 5-day week.

□ □ □

May exports of all automotive products, valued at $8,445,580, were slightly higher than in April.

□ □ □

A public works program "would undoubtedly prove to be a stimulating effect upon business," Charles F. Abbott, executive director, American Institute of Steel Construction, told President Hoover, July 7.

□ □ □

A hearing was held here yesterday between domestic manufacturers, importers and customs officials relative to marking reinforcing bars. Customs officials originally ordered that bars be marked, and the hearing was to give both sides another chance to present evidence as to why they should or should not be marked when imported. American Iron and Steel institute, United States Steel Corp., Carnegie Steel Co. and Bethlehem Steel Co. were represented.

Articles on Pentup Steel Requirements Will Be Resumed Next Week

ESTIMATES based on production during the first six months of this year indicate that the output of steel ingots and castings for 1932 *will be about* 16,000,000 *tons. As shown in the article on page* 11 *of last week's issue, this means that the production per capita will be* 295 *pounds, a figure closely paralleling the per capita output of* 300 *pounds in the year* 1900.

The normal per capita requirement of the nation in 1932 *was shown to be* 1035.7 *pounds, yet we are buying steel at a rate only sufficient to support the country on the basis of living standards of* 1900! *We are not going to return to the horse and buggy mode of life; therefore the deficiency in steel consumption must be made good in the future. That deficiency represents the steel required for automobiles, airplanes, roads, buildings, bridges, household equipment, etc. that were nonexistent in point of steel consumption in* 1900.

A second article, in which the study of pentup steel demand introduced last week is carried forward, will appear next week. It will be followed by other articles which will show conclusively that good years are ahead for manufacturers of steel products.

THE EDITORS

Nominated for Officers of Mechanical Engineers

New York—A. A. Potter, dean of engineering, Purdue university, Lafayette, Ind., has been nominated for president of the American Society of Mechanical Engineers for 1933.

Nominees for vice presidents are H. V. Coes, consulting management engineer, Ford, Bacon & Davis Inc., New York; James D. Cunningham, president, Republic Flow Meters Corp., Chicago; and C. F. Hirshfield, chief of research department, Detroit Edison Co., Detroit.

R. L. Sackett, dean of engineering, Pennsylvania State college, State College, Pa.; Alexander D. Bailey, superintendent generating stations, Commonwealth Edison Co., Chicago; and John A. Hunter, professor of mechanical engineering, University of Colorado, Boulder, Colo., are named for the offices of manager.

These selections were announced by the nominating committee at the semiannual meeting of the society at Bigwin, Ont., June 27-July 1. Election will be by mail ballot of the membership closing Sept. 27, although nomination virtually assures election.

British Specifications May Bend to Canadian Needs

Preliminary to the empire economic conference to be held at Ottawa, Ont., this month, ten representatives of the British steel industry were in conference July 4 with representatives of Canadian steel companies, including the Dominion Steel & Coal Co., Algoma Steel Corp., Steel Co. of Canada Ltd., and Dominion Foundries & Steel.

Efforts will be made by British manufacturers to promote greater use of types of steel not made in Canada and largely imported from the United States. Because Canadian importers are more accustomed to specifications used in the United States, a modification of British specifications may be necessary.

Modifies Scrap Decision

Washington—Interstate commerce commission has modified a former decision in which it held that carload rates on scrap iron from certain points in North Carolina to Ashland, Ky., Portsmouth, O., Harrisburg and Steelton, Pa., and East Radford and Lynchburg, Va., were applicable and unreasonable for the future, and in certain instances in the past, but not

otherwise unlawful, except some of the shipments were found to have been misrouted.

Chapple Heads Committee On Porcelain Enameling

Porcelain Enamel institute, Chicago, has set up a committee on architecture to co-operate with architects and their associations in the development of porcelain enamel on metal for use in modern construction and design.

Bennett Chapple, vice president, American Rolling Mill Co., Middletown, O. is chairman. Other members are: J. W. Fall, Benjamin Electric Mfg. Co., Des Plaines, Ill.; W. Russell Greer, Porcelain Enamel & Mfg. Co., Baltimore; William Hogenson, Chicago Vitreous Enamel Product Co., Chicago; and R. A. Weaver, Ferro Enamel Corp., Cleveland.

Small Holders Buying into United States Steel Corp.

Only persons able to own 1000 or more shares of United States Steel Corp. common stock are doubtful concerning it, a comparison of the number of stockholders at the time of closing books for the annual meeting in May discloses. Following are comparisons for three years:

Classification	1930	1931	1932
Under 10 shares	59,564	67,943	80,309
10 to 24 shares..	32,187	39,552	57,234
25 to 49 shares..	14,643	16,871	21,387
50 to 99 shares..	9,203	10,806	13,293
100 to 999 shares	11,937	13,720	14,340
1000 and over.....	1,060	999	846
	128,594	149,891	187,409

Salvation in Co-Operation

Give industry half a chance and its leaders can, through co-operative efforts, restore a measurable prosperity to the country, said Charles F. Abbott, executive director, American Institute of Steel Construction, in addressing the round-table discussion on antitrust laws at the Institute of Public Affairs of the University of Virginia at Charlottesville, Va., July 8. He stressed the importance of trade associations and their value if permitted to function in a reasonable and normal manner.

Drawback on Steel Rolls

Washington—Drawback allowance has been granted by the treasury department on iron and steel rolls, manufactured by the Continental Roll & Steel Foundry Co., East Chicago, Ind., at its plants at East Chicago, Wheeling, W. Va., and Coraopolis, Pa., with the use of imported nickel.

Corrigan, McKinney in Newton Pact Splits Common 500 for 1

FIRST adjustment in the common stock of the Corrigan, McKinney Steel Co., Cleveland, since its incorporation, May 6, 1901, accompanies a "plan of affiliation" whereby Corrigan-McKinney unites with the Newton Steel Co., Detroit.

At present, the Corrigan-McKinney common stock capitalization, as for the past 31 years, is 2500 shares of $100 par. This is being broken up into 1,500,000 shares of $1 par.

Of this new common, 1,250,000 shares are being distributed pro rata among the holders of the 2500 shares of $100 par. The effect is an exchange of 500 for 1.

Under the "plan of affiliation," there is a complete consolidation of production facilities, yet each company retains its full corporate identity. The two complement each other, Corrigan-McKinney being a producer of the semi-finished steel which the Newton company, with mills at Monroe, Mich., and Newton Falls, O., converts. The affiliation is to be completed by Aug. 15. At present, no changes in personnel are contemplated.

Corrigan-McKinney, of which Donald B. Gillies is president, has four blast furnaces and a steel plant at Cleveland, its annual capacities being 1,000,000 tons of pig iron, 1,000,000 tons of steel ingots, 733,000 tons of semifinished steel, 268,000 tons of merchant and concrete bars.

The Newton company, incorporated in June 1909, and of which E. F. Clark is president, completed its Monroe, Mich., mill in March, 1930, its capacity there being 200,000 tons of sheets annually. The old Newton plant at Newton Falls, O., has a similar capacity. Plans to convert it into a tin plate mill have never materialized.

Of the 1,500,000 shares of new Corrigan-McKinney common, 1,146,450 are voting and 353,550 are nonvoting. For each share of Newton preferred, one common voting and one common nonvoting share of Corrigan-McKinney will be exchanged. For each Newton common share 4/10 of a common voting share of Corrigan-McKinney and 1/10 of a common nonvoting share will be exchanged.

To provide the Newton company with additional working capital it is contemplated that Corrigan-McKinney may make advances by way of cash or credit, accepting notes secured by 7 per cent first mortgage bonds of Newton.

The assent of holders of preferred stock of the McKinney Steel Holding Co. will be sought.

Cast Your Bread Upon the Waters—

A MIDDLE WEST maker of steel mill equipment needed some machinery recently. Calling in a manufacturer with whom he had done satisfactory business, the purchasing agent said:

"This business is yours on a noncompetitive basis—provided your price is fair to us and includes a profit for you. We insist on a profit on every sale we make; we want our suppliers to do likewise. And in turn, you must agree not to chisel the price of the foundry supplying the castings for this machinery."

To which the machinery manufacturer assented with alacrity, informing his castings source—the foundry division of an important steelmaker—of this unusual attitude. It happened that the steelmaker was in the market for some equipment which the liberal-minded company produced, and placed an order with it—also on a noncompetitive basis.

The maker of the equipment figures that the profit on this order was larger than any concession he might have wrung from the machinery manufacturer.

Join New Departure Plants

Elmwood division of the New Departure Mfg. Co. is being consolidated with the Meriden, Conn., division. The Elmwood division has been producing ball bearings exclusively.

Reopens Engine Repair Shops

Missouri Pacific railroad is operating its locomotive shops at Sedalia, Mo., and Little Rock, Ark., three 5-day weeks in July. Freight car repair shops have been on this basis.

6008 Tons Dutch Iron Arrive

Philadelphia—The following imports were received at this port during the week ending July 2: 500 tons of ferromanganese, Germany; 6008 tons of pig iron, Netherlands.

June Ingot Rate—15.96 Per Cent—Pierces Low of 1921

WHEN the daily production of open-hearth and bessemer steel ingots declined in June to 34,511 gross tons, or 15.96 per cent of capacity, it broke through the low of the depression of 1921—36,713 tons in July, 1921—and was the smallest for any month in modern steelmaking history.

On the basis of the June total of 897,275 tons of ingots, production was at an annual rate of barely 10,000,000 tons, and not since 1898 has the output in any one year fallen below 10,000,000 tons.

The June daily rate of 34,511 tons, compares with a revised 42,540 tons for May and 81,837 tons for June, 1931.

In the first six months of 1932, according to the American Iron and Steel institute, total output of open-hearth and bessemer ingots was 7,567,769 gross tons, representing an operating ratio of 22.43 per cent. In the first half of 1931, production was 15,559,860 tons, or 47.25 per cent of capacity.

In the production table below, monthly open-hearth production statistics for 1931 have been revised, and the calculated monthly output, the daily rate and the percentage of operations adjusted. The new determination of the industry's open-hearth and bessemer capacity as 67,473,630 gross tons as of Dec. 31, 1931, has necessitated a revision of the calculated monthly output, daily rate and percentage of operations for the first five months of 1932.

Steel Ingot Production—1931-32

95.33 Per Cent of Industry Reporting
Gross Tons

1931	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
Jan.	2,098,175	296,620	2,394,795	2,512,140	27	93,042	43.80
Feb.	2,131,079	296,974	2,428,053	2,547,027	24	106,126	49.96
Mar.	2,565,531	346,137	2,911,688	3,054,339	26	117,475	55.30
Apr.	2,321,043	316,668	2,637,711	2,766,959	26	106,421	50.09
May	2,130,805	301,639	2,432,444	2,551,633	26	98,140	46.20
June	1,782,007	246,365	2,028,372	2,127,762	26	81,837	38.52
6 mos.	13,028,640	1,804,403	14,833,043	15,559,860	155	100,386	47.25
July	1,574,379	225,030	1,799,409	1,887,580	26	72,599	34.17
Aug.	1,462,254	174,380	1,636,634	1,716,829	26	66,032	31.08
Sept.	1,274,072	199,151	1,473,223	1,545,411	26	59,439	27.98
Oct.	1,319,958	195,943	1,515,901	1,590,180	27	58,896	27.72
Nov.	1,276,856	240,441	1,517,297	1,591,644	25	63,666	29.97
Dec.	1,068,384	172,046	1,240,430	1,301,211	26	50,047	23.56
Total	21,004,543	3,011,394	24,015,937	25,192,715	311	81,006	38.13
1932							
Jan.	1,230,661	160,633	1,391,294	1,459,450	26	56,133	25.96
Feb.	1,232,568	157,067	1,389,635	1,457,710	25	58,308	26.96
Mar.	1,149,307	193,944	1,343,251	1,409,054	27	52,187	24.13
Apr.	1,036,227	144,197	1,180,424	1,238,250	26	47,625	22.02
May	950,785	103,593	1,054,378	1,106,030	26	42,540	19.67
June	755,123	100,249	855,372	897,275	26	34,511	15.96
6 mos.	6,354,671	859,683	7,214,354	7,567,769	156	48,511	22.43

Figures exclude crucible and electric ingots. Operating percentages for 1931 on capacity of 66,069,570 gross tons as of Dec. 31, 1930; for 1932 on 67,473,630 tons as of Dec. 31, 1931.

Here and There In Industry

SEMET-SOLVAY ENGINEERING Corp., New York, is installing for the Pittsfield Coal Gas Co., Pittsfield, Mass., a complete tar burning unit, enabling the plant to make steam from its surplus tar, thus displacing steam coal. The contract includes a tar burner, tar heater, steam and tar piping, insulation, brickwork, changes to boilers and erection. The company's construction work placed with Semet-Solvay Engineering Corp. also includes a 65-foot steel stack for the Semet-Solvay waste heat boiler.

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A & J Scrap & Supply Co., Tulsa, Okla., dealer in scrap iron, steel and metals, has been dissolved.

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International Engineering Works Inc., Framingham, Mass., has received contracts for the boilers and tanks to be installed in the new plant of the Carr Mfg. Co. of Bristol, Conn., producer of rubber footwear.

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Riley Stoker Corp., Worcester, Mass., has received from Columbia university, New York, an order for two heating units, each with a capacity for evaporating 135,000 cubic feet of water per hour. The contract price is more than $100,000.

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Bagdad Copper Products Inc., Sandusky, O., converter of hot-rolled copper, is completing its new plant and expects to start production by Oct. 1. E. B. Bronson is president, George I. Gheen vice president, and C. F. Hart secretary and treasurer.

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Stephens-Adamson Mfg. Co., Aurora, Ill., manufacturer of conveyors, has established a branch office in the Cutler building, Rochester, N. Y. F. H. Wisewell has been appointed district manager and will be in charge of sales and engineering for the entire line of conveying, screening and variable-speed transmission machinery.

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Curtis & Marble Machine Co., Worcester, Mass., has purchased the business of Elliott & Hall, manufacturers of cloth-folding machinery, and the equipment has been moved to the Curtis & Marble plant. Elliott & Hall dates back to 1869, when the partners took on the manufacture of equipment which had been on the market since 1855.

How to Cut Marketing Cost

"A Basis for Supervision of Industrial Sales Personnel," is the title of a study of methods to reduce distribution expenses and obtain a more complete profitable sales coverage in the industrial marketing field. It was made by the department of commerce and costs 10 cents through the government printing office, Washington.

Soviet Makes First Nickel

What the USSR chamber of commerce describes as a "newly-assembled laboratory electric oven intended for smelting higher grade steel," was used in an experiment in producing the first soviet nickel. Sulphur was brought down to 0.013 per cent, it was claimed.

Industrial Men in the Day's News

Nelson W. Pickering, President, Farrel-Birmingham Co.

GRADUATE of the naval academy, he was assigned to ordnance engineering, being active in the research and production phases.

DURING the World war he visited industrial ordnance plants in England and France, later serving as gunnery officer on an American battleship.

CONTACT with the chairman of the Farrel-Birmingham organization during the war led to his eventual connection with the company.

NELSON W. PICKERING, who was re-elected president of the Farrel-Birmingham Co. Inc., Ansonia, Conn., as noted in STEEL, Feb. 29, has been identified with that company and its predecessor, the Farrell Foundry & Machine Co., during all of his civilian business career.

Mr. Pickering was born April 7, 1887, in Cambridge, Mass., and attended the public schools in Roxbury, Mass., later preparing for college at the Roxbury Latin school. In March, 1904, he was appointed to the United States Naval academy from Massachusetts. After his graduation in 1908 he was assigned to sea duty and subsequently was selected for post-graduate instruction in ordnance engineering, which included duty at the naval gun factory, Washington; the proving ground at Indian Head, Md.; and the Bethlehem Steel Co.

He then was sent to England to complete the instructional course at Barr Stroud Optical Works, Glasgow, Scotland, and the Whitehead Torpedo Works, Weymouth, England. Following another tour of sea duty given over primarily to gunnery work, he served as chief of gun section, bureau of ordnance, navy department.

Upon completion of this work he was assigned to duty overseas during the World war and at that time visited the large industrial ordnance plants in England and France. After the armistice he served for a year as gunnery officer of the U. S. S. NORTH DAKOTA.

During the war he was associated with Franklin Farrel Jr., now chairman of the Farrel-Birmingham board of directors, who, recognizing his executive and administrative abilities, induced him to resign from the navy and join the Farrel Foundry & Machine Co.

In November, 1919, he started work in the Farrel roll department and became, successively, assistant manager and manager of that department. In February, 1930, he was elected president of the Farrel-Birmingham Co., with executive direction of the company's three plants at Ansonia and Derby, Conn., and Buffalo.

Mr. Pickering is well known in the trade served by the Farrel-Birmingham Co., having traveled extensively in the company's interests throughout the United States, Canada and Europe, including Russia.

With his resignation from active duty in the navy, Mr. Pickering did not relinquish his interest in the service. He still holds a commission as lieutenant commander in the naval reserve and commands the naval reserve force and naval militia in Connecticut. For six years he was naval aide to Governor Trumbull.

Mr. Pickering has his home at Ansonia, where he is active in civic and municipal affairs. He is a member of the following clubs: New York Yacht; Army-Navy, Washington; Watch Hill Yacht and Misquamicut Golf, Watch Hill, R. I.; Race Brook Country, Orange, Conn.; and the Graduates Club association, New Haven, Conn.

WILLIAM H. STRATTON, manager of the bridge department of United States Steel Products Co., New York, export division of the United States Steel Corp., retired July 1 under the pension plan of the Corporation. For 43 years he was identified with various subsidiaries of the Corporation, and his name is associated with important bridge projects in foreign countries, notably the Santa Lucia bridge in Uruguay, the Yellow River bridge in Manchuria, and the Florianopolis bridge in Brazil. He has been succeeded by Henry G. Vollmer.

Frederick Meyers, manager of the tube department of the Steel Products company, also retired July 1, following a 38-year affiliation with Corporation susidiaries. Cornelius L. Kelley is his successor.

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Wallace T. Montague, connected with Norton Co., Worcester, Mass., for twenty years, became director of sales, abrasive products divisions, July 1. This groups together under one head the

divisions handling the sale of abrasive grain, Norton floors, refractories and laboratory ware and pulpstones.

H. K. Clark, relinquishing management of the Chicago branch, became director of sales of the grinding wheel division. His headquarters will be at Worcester but much of his time will be devoted to field supervision. Except for a two year period as sales manager of the Norton plant in Germany, Mr. Clark has been identified with the Norton Chicago office since 1916.

W. E. Shumway moves from Hartford, Conn., where he was district manager, to become manager of the Chicago branch of the grinding wheel division. His former work in Connecticut will be carried on by O. A. Nierendorf and R. W. Price, who have been associated with him in the Hartford district.

William Pettigrew, transferred from the research laboratories, has joined the abrasive grain division as sales engineer. Mr. Pettigrew as a member of the research laboratories has specialized on abrasive developments.

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James E. Gleason, general manager of the Gleason Works, Buffalo, has been elected a trustee of the University of Rochester, at Rochester, N. Y.

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Dr. Webster N. Jones, general superintendent, processing division, B. F. Goodrich Co., Akron, O., Aug. 1 becomes director of engineering of Carnegie Institute of Technology, Pittsburgh.

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H. C. Ramsey, vice president in charge of international business for the Worthington Pump & Machinery Corp., Harrison, N. J., sailed for Europe July 8 for a 10-week business trip.

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E. F. Sells, associated with the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., since 1911, and since 1919 in the Washington office as specialist in ship propulsion machinery and marine equipment, has been appointed manager of the Washington office to succeed the late B. H. Hamilton.

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A. R. Kelso, for the past six years works manager of the Continental Motors Corp., Muskegon, Mich., and previously with the Hudson Motor Car Co., Detroit, has been appointed vice president and general manager of the Detroit Forging Co. He succeeds to the duties of E. R. Wegener, president and general, who resigned last week.

Milwaukee Steel Foundry, 435 South Water street, Milwaukee, has changed it capital structure from $300,000 common stock to 2000 shares class A common at $100 each and 10,000 shares class B common at $10 each.

Obituaries

COL. E. H. WILLIAMS, 61, president and general manager of the Vulcan Mold & Iron Co., Latrobe, Pa., was killed July 7 in an automobile accident. Mr. Williams formerly was well known as a blast-furnace manager in the Central West and East. He was a son of the late E. P. Williams, for many years treasurer and office manager for Pickands, Mather & Co., Cleveland. He began his blast furnace career about 1895 as superintendent of the Ella furnace at West Middlesex, Pa., then manager of the Phoenix stack of the former Brown, Bonnell & Co., Youngstown, O. Later he was superintendent of the Toledo Furnace Co. stack, Perry furnace, Erie, Pa., and the Salem, O., stack of the McKeefrey Iron Co. About six years ago he became connected with the Latrobe mold foundry as executive. During the World war he was attached to the war department at Washington, with the title of colonel.

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Josiah B. Borden, president, Borden Stove Co. and United Stove Repair Co., Philadelphia, died June 16. He was 72.

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Bainbridge W. Burdick, president, Burdick & Son, tin can and metal container manufacturers, Albany, N. Y., died at his summer home in Vermont, July 4.

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Charles J. Cooper, 89, who was vice president of the former H. W. Cooper Hardware Saddlery Co., Moline, Ill., now part of the Moline Iron Works, died at Nantucket, Mass., June 19.

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Roy C. Blanchard, 40, production engineer of the grinding machine division of Norton Co., Worcester, Mass., died June 29. A graduate of Worcester Polytechnic institute, he had been with the company for 16 years.

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J. Fred Arundell, 77, a retired manufacturer of architectural cast iron, died recently in Riverdale, N. Y. He was a native of England and came to the United States in 1875. He retired in 1912.

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Thomas H. Allison, 60, who last Feb. 29 succeeded the late Augustus Smith as president of the Bergen Point Iron Works, Bayonne, N. J., died July 2. He was a graduate of the University of Toronto, and after leaving the university became associated with the Dominion Bridge Co., Peterboro, Ont., and the Trenton Iron Co., Trenton, N. J. In 1896 he became associated with Mr. Smith, becoming secretary in 1906 and president this year.

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Jonathon C. Meloon, 81, general mechanical superintendent, General Fire Extinguisher Co., Providence, R. I., died June 20, concluding a continuous record with the General Fire Extinguisher Co. and its predecessor of 66 years, 2 months, 7 days. In 1926 he was tendered a complimentary dinner on the sixtieth anniversary of his connection with the company. He designed special machinery, including a tapping and a facing machine and one for multiple drilling.

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Dr. George K. Burgess, for the past nine years director of the bureau of standards, Washington, and associated with the bureau since 1903, died unexpectedly at Washington, July 2. His death followed a discussion with his staff of prospect of curtailing the bureau's activity, as a result of the economy bill.

Born in Newton, Mass., Jan. 4, 1874, Doctor Burgess was graduated from Massachusetts Institute of Technology in 1896. Five years later he was made a doctor of science by the University of Paris. Two years later, or in 1903, he began with the bureau of standards as associate physicist and advanced to director in 1923. Among his contributions to science are noteworthy tests and specifications of rails and car wheels, a process for rustproofing steel and research on the properties of gases in steel. On succeeding to the directorship of the bureau his predecessor, Dr. S. W. Stratton, characterized him as "thoroughly able, efficient, conscientious and industrious."

Expect New Institute Plan

New York—An important announcement concerning the broader scope of the American Iron and Steel institute concerning which Charles M. Schwab, president, hinted at the spring meeting, may be made following the monthly meeting of directors, July 21.

Completes River Terminal

Pittsburgh & Lake Erie railroad has completed a river-rail terminal at Colona, Pa., about 30 miles below Pittsburgh on the Ohio river. Constructed by Dravo Contracting Co., Pittsburgh, it is an electrically operated transfer system for moving cargoes from barges to railroad cars.

Take Wage Cut After Strike

A 3-week strike of 300 employes of the Crucible Steel Co. of America works, Jersey City, N. J., ended with the strikers accepting a 10 per cent wage reduction. State unemployment funds were withheld from the strikers.

MIRRORS OF MOTORDOM

DETROIT

HUDSON-ESSEX will be first in the field with an automobile especially designed for present market conditions—if the new Fords be not considered strictly in this category. While not completely skinned down, the new model is an approach to the pure transportation-economy basis which some believe will conjure up business now.

There have been reports of a 4-cylinder engine, but the best information now is that the engine is a six, a refinement of the present Essex power plant. The body is about 800 pounds lighter than the current Essex series, which in the 5-passenger sedan weighs 2870 pounds. The price is expected to be the lowest ever made by the Hudson-Essex organization.

This lightness is achieved by the use of alloys and some radical departures in design in both chassis and body. Emphasis in the sales promotion campaign will be laid upon the high ratio of power to weight and the resulting advantages: Economy of operation and servicing, faster acceleration, higher top speed and unusual flexibility.

By comparison with this 2000-pound model, the Ford four weighs 2360 pounds, Ford eight 2450, Willys six 2800, Chevrolet 2770 and Plymouth 2875. Willys, it will be recalled, has designed a 1900-pound car, which may be introduced this fall.

Now Producing New Essex

On account of the tremendous cost of establishing a new name at this time, the new model is being called Essex, it is understood. Production is now under way, last week being one of the best this year for the organization. Distributors were at the factory ten days ago; formal introduction is near.

An adjustment in the Hudson-Essex line may be one consequence of this organization's bid for business in the lowest-price field. Like practically all medium-price cars, Hudson sales have suffered severely in the past year. Some believe that Hudson-Essex, reputed for being long-headed, may meet this situation by concentrating—for the time being, at least—on the low-price field, with the new light six at the bottom of the line and an Essex super-eight just above it.

Chrysler has proved with DeSoto and Plymouth that a manufacturer by radically changing his design and by aggressive merchandising can sell cars even in an off year. Emboldened by this success, a similar campaign for Chrysler and Dodge is believed to be in the formative stage.

Stress Higher Power Ratio

In the new Chrysler and Dodge series this fall stress is expected to be laid upon greater power and less weight. Chrysler is known to have a light car ready, presumably a four, for the Dodge line. Thus far Chrysler has not purchased any production tonnage for either the Chrysler or the Dodge line, but for DeSoto and Plymouth continues a market factor.

The stamping department at Dodge, producing for both the Dodge and DeSoto lines, has built up a bank of parts sufficient for 90 days, or into September, and is closing.

Buick continues to prosecute the preliminary work on its 1933 series, and in the past week has issued inquiries for some parts, asking prices through March, 1933. The end of this year is the farthest some producers will quote. Murray Body has won the contract for many body parts for a new Studebaker series, expected in the fall.

Although the flow of materials to Ford shows no surface contraction, production at the Rouge plant apparently is just over the crest. On a world basis, Ford output in May was 72,140 units and in June slightly over 95,000.

The July schedule, for domestic assemblies only, is 85,000 to 90,000 units, and the tentative setup for August is 55,000 to 60,000 units. Production last week, on a 4-day basis, was on the under side of 5000 units daily, possibly nearer 4000 units than 5000. This is about evenly divided between the four and the eight.

Most of the contraction in schedule now in sight is on the four. Dealers' stocks of the four are adequate, in most districts, and are considerably larger than those of the eight.

As noted last week, Chevrolet also is tapering. This week's schedule is heavier than last week's, which suffered from the Independence Day holiday, for one thing. But July will see not more than 29,000 to 30,000 Chevrolets assembled, and by September the rate will be below 20,000.

Current production of other automobile manufacturers on a weekly basis—daily rates being deceptive because of irregular schedules—are Plymouth 3000, DeSoto 2000, Dodge 1400, Studebaker and Rockne 1350, Pontiac 1000, Auburn 850, Nash 800, Willys 800, Buick 750, Olds 400, Chrysler 400, Graham 325, Reo 225, Packard 125, Hupp 125, Franklin 125. Hudson-Essex has gone beyond 1000 units a week as a result of action on the new light Essex. Cadillac-LaSalle is closed.

June Output Is Below May

National automobile chamber of commerce estimate of June output, including Canada, is 190,600 units, compared with 193,270 in May. Like Ford, the entire industry thus probably was at its peak in May. The chamber's estimate for the first half of 1932 is 912,353 units—still including Canada—against 1,639,027 units in the first half of 1931, a decline of 44 per cent. July output is falling below June.

EDITORIAL

Unwarranted Meddling Is Bad for Industry

FOLLOWING the appearance in the issue of June 13 of the editorial "Merit vs. Reciprocity in Buying and Selling," we have received comment from many readers indicating that the problem is of deep concern throughout the material and equipment industries.

We have been told that reciprocity as generally practiced does not involve higher prices or inferior quality. A number of critics have gone so far as to say that reciprocal buying usually is justified by extenuating circumstances that result in more benefits than harm.

On the other hand one cannot escape the conclusion that there are hundreds if not thousands of manufacturers who are really alarmed at some of the present aspects of what they term "recprocity." While the loudest complaints come from companies of moderate or small size, still there are officers of large corporations who are beginning to question the wisdom of carrying reciprocity to absurd lengths.

One of the most common complaints is that good salesmanship frequently is futile in the face of present day practices of reciprocity. Scores of instances have been reported wherein a certain product or service has been accepted by a long chain of officials in the customer's company, but in the end their recommendation to purchase has been overruled by the chief executive office and the order has been given arbitrarily to a competitor.

Substituting Power of Authority for Orderly Processes of Trade

Numerous reports are heard of trading upon family connections, under duress of bankers' wishes, upon recommendations of directors who hold office in several companies, and under pressure from other outside influences. Perhaps this is to be expected when conditions in business are as serious as at present, yet the germ of the idea of substituting the power of authority for the usual methods of buying and selling existed before this depression set in. There always have been executives who believed that pressure through authority is an effective sales weapon.

Today, however, the opportunities for exercising that arbitrary authority are more abundant. Recently a company that has been unusually successful in nursing sick industrial concerns back to life was called in to rescue a manufacturer of steel products. In looking over the market for the manufacturer's products, the industrial doctor was particularly interested in the financial connections of the prospective customers. It was clear that he had in mind the possibility of using his influence through banks to favor the shifting of trade to his unfortunate client.

When we consider this aspect of the situation we must realize that the problem extends beyond the confines of reciprocity. Perhaps the major cause of existing complaints will be found in the exercise of arbitrary powers over the administration of industrial concerns by outsiders. Is it not probable that the abnormally strong influence of finance is partly responsible for the prevalent trading of orders for sales?

Rights of Interested Outsiders Do Not Require Interference in Operations

Close scrutiny of industrial corporations in time of small profits or deficits is necessary and desirable, but it is possible to exercise the required supervision without encroaching upon the operating functions of the management. Also it is natural that directors and large stockholders should be more keenly interested in the operation of their company in times of stress than when its affairs are running smoothly. Nevertheless their interest and the benefit of their help and experience can be served without arbitrary interference on their part with the details of operation.

The chief executive usually is able to satisfy the demands of stockholders, directors and bankers without permitting them to interfere with purchases and sales. If he is unable to do so, his company in the long run will pay a terrific price for the meddling of outsiders in its business. If he permits dictation on buying, he probably will permit encroachment on other prerogatives. A company operated by other than the responsible head is on dangerous ground.

Newton D. Baker, appearing in court in a recent industrial dispute, said, "I think industry should be governed by industrialists, not by investment bankers. . . ."

This view will prevail in the long run. In the meantime industry is suffering from the well intentioned efforts of outsiders to meddle in its affairs. The sooner their activities are throttled down to legitimate bounds, the sooner industry will recover and the sooner buying and selling will be restored to a normal basis.

THE BUSINESS TREND

Business Scans Gains in Livestock and Grains

IN A business situation still marked by numerous uncertainties, the continued resistance of commodity prices to the downward trend of recent months is receiving close attention. Weekly barometers of wholesale commodity prices have registered gains for three consecutive weeks. Bradstreets, a monthly index of 96 commodities, on July 1 showed a slight gain over the figure of June 1. This is the third interruption since late in 1929 in the sharp downward curve of the index. The previous interruptions were brief and slight.

Thus far the price barometers have been forced upward by firmness in the prices of a comparatively few commodities—principally agricultural products. Of these the soaring prices of hogs have been given considerable publicity. If the present good showing in grains and livestock should hold, then there may be justification for the predictions made to the effect that improvement in farm products will lead the country out of the depression.

Betterment on the farms would provide a degree of relief to the railroads. In 1921 improving freight car loadings and increased railroad earnings were apparent before the end of the second quarter, whereas a general improvement in industrial activity did not manifest itself until the middle of the third quarter.

In this depression we have yet to witness any marked change in the freight traffic situation. The estimates submitted to the shippers' regionary advisory boards indicate that traffic during the third quarter will be 21 per cent below that of the same period last year. Inasmuch as freight volume in recent weeks has been about 30 per cent below that of the corresponding weeks of 1931, it is evident that if the estimates of third quarter volume are correct, an improvement of nearly 10 per cent is in prospect.

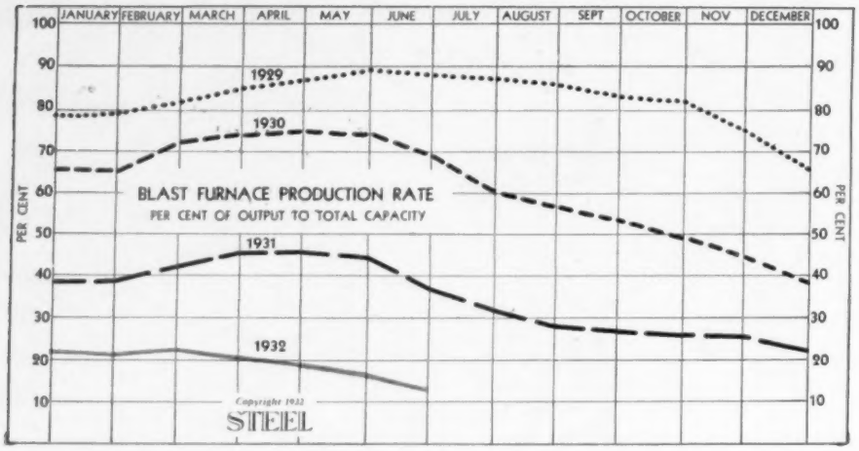
Third-Quarter Freight Volume Should Help Railroad Earnings

While this is meager hope for the railroads, still it is enough to show perceptibly in their third-quarter earnings statements. Moreover, it is significant that if coal and ore were eliminated from the estimates, the volume of the other commodities for third quarter would be only 16 per cent below 1931 levels. It is evident, therefore, that a marked increase in traffic of grain, livestock, petroleum, etc., in third quarter over second quarter is anticipated.

Developments of the next few months will have a strong bearing on the march of business to higher ground. If no unforeseen external influences are interjected into the picture, it is reasonable to hope for a slight improvement for industry before the end of the third quarter.

1932	
July 1	$6.72
June 1	6.68
May 1	6.91
April 1	7.15
March 1	7.31
Feb.	7.52

1931	
July 1	$8.77
June 1	8.64
May 1	8.91
April 1	9.22
March 1	9.16
Feb. 1	9.30



	1932	1931
June	14.2	38.4
May	17.9	42.5
April	20.2	45.4
March	22.0	46.5
Feb.	23.4	44.7
Jan.	22.1	37.9

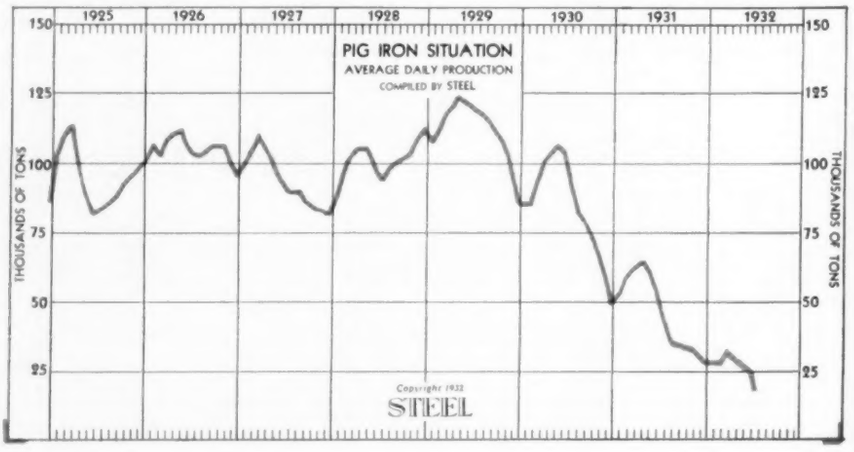
With Only 48 Active Stacks, Pig Iron Rate Is 14.2 Per Cent Capacity

A further reduction in blast furnace activity took place during June. With an operating rate amounting to only 14.2 per cent of capacity and with a loss of six furnaces from the active list, pig iron production suffered a sharp loss. From present indications the bottom will not be reached for another month. On June 30, only 48 of the country's 297 potential stacks were active, as against 54 on May 31. Of the merchant class, two were blown in and one was blown out, a gain of one unit. Of the non-merchant class, two were blown in and nine were made inactive, with a net loss of seven units.

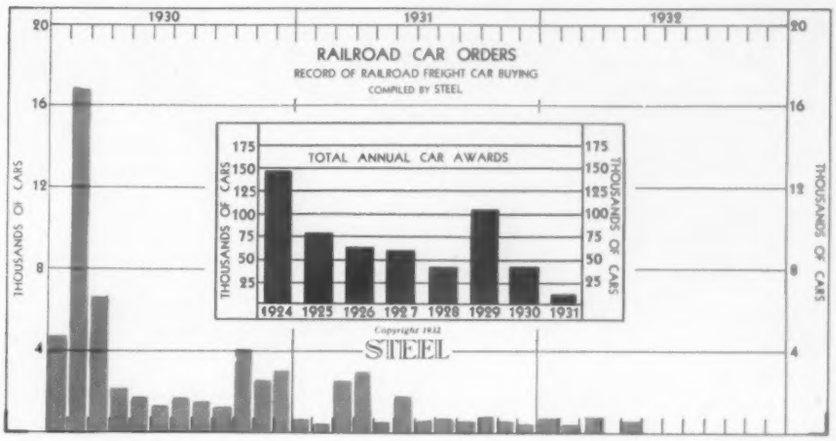
Daily Rate of Pig Iron Production Reflects Continued Dullness

With an average daily rate of 20,888 tons in June, pig iron production was 4394 tons or 17.3 per cent less than the 25,282-ton rate of the month before. In June last year the rate stood at 54,599 tons while in the same period of 1930 the average daily rate was 97,817 tons. Total production in June was 626,651 gross tons, a decrease of 157,118 tons, or 20 per cent from the 783,769-ton output of May. Production in June last year totaled 1,637,998 gross tons. Beginning with last month, production of pig iron dropped to a level of 30 years ago, when figures were first compiled on a monthly basis.

	1932	1931
June	20,888	54,599
May	25,282	64,355
April	28,524	66,986
March	31,194	65,448
Feb.	33,122	61,114
Jan.	31,336	55,337



	1932	1931
June	0	1,910
May	60	20
April	0	2,798
March	105	2,166
Feb.	35	50
Jan.	159	100

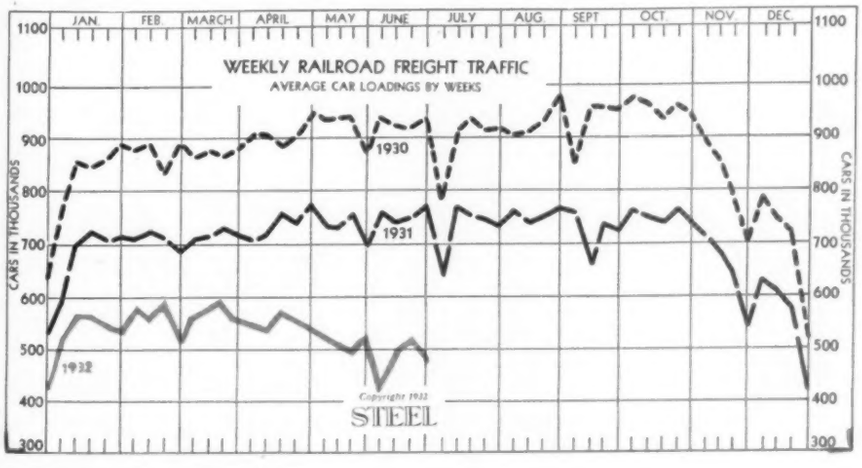


No Freight Car Awards in June; Six-Month Total Down

No awards for domestic freight cars were placed during June. This is the second time this year builders have encountered an entire absence of demand. The same situation occurred in April. In June last year awards totaled 1-910 cars compared to 998 for the same month in 1930. During the first half of this year awards have totaled only 359 cars compared to 6044 for the same 6-month period last year and 32,604 for the first half of 1930. Because of light traffic and impaired earnings, railroads have limited their purchases to the barest essentials. Builders believe, however, the moment there is an upturn in general business it will be reflected in railroad buying.

Freight Car Loadings Decline in Final Week of June

Loading of revenue freight for the week ended June 25 totaled 498,599 cars, according to reports from the car service division of the American Railway association. This was a decrease of 19,610 cars from the preceding week, 260,-564 cars below the corresponding week in 1931, and 437,891 cars under the same period two years ago. Loading of miscellaneous freight was largely responsible for the week's reduction in freight traffic, with a loss of 18,594 cars below the preceding week. Loading of coal, forest products, coke and live stock each registered declines, while loading of ore and grain products made slight gains. All districts reported reductions in the total loading of all commodities.



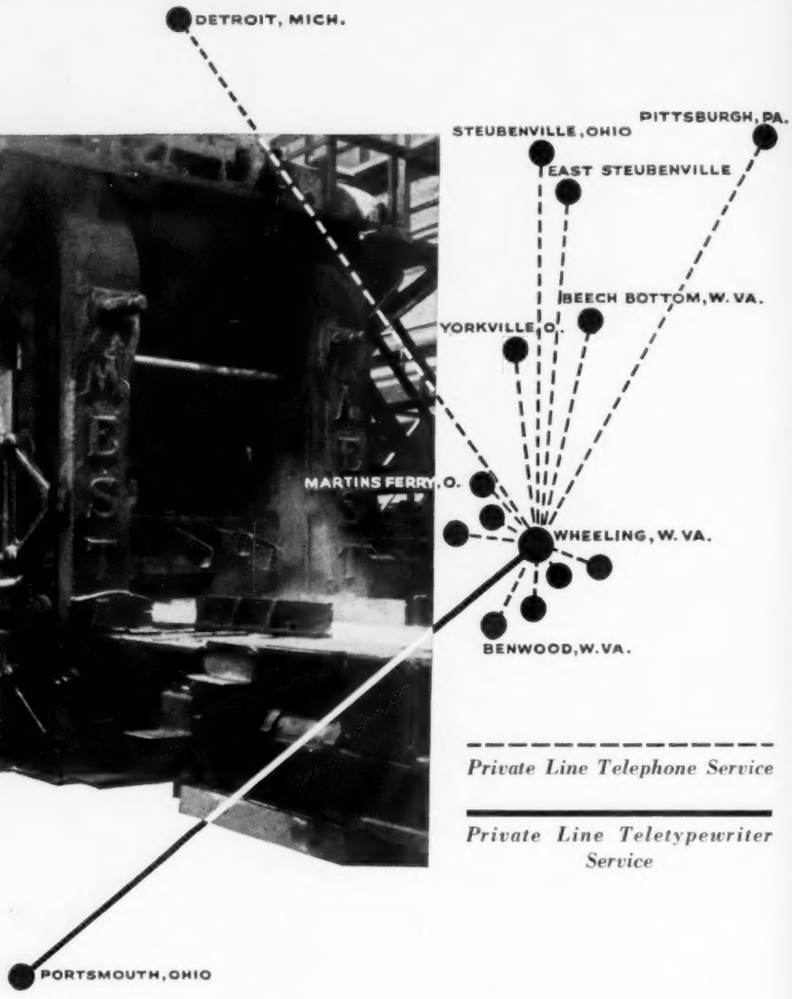
	1932	1931
June 25	498,599	759,363
June 18	518,409	739,094
June 11	501,760	723,409
June 4	447,387	761,084
May 28	520,962	712,229
May 21	515,450	754,738

14 PLANTS AND OFFICES IN 4 STATES

CO-ORDINATED BY TELEPHONE AND PRIVATE LINE

TELETYPEWRITER SERVICE

Continuous Mill, Steubenville Works
Wheeling Steel Corporation



CLOSE executive control of 14 plants and district offices in many parts of the country, made possible by Bell System Private Line Services, is effecting economies for the Wheeling Steel Corporation, Wheeling, W. Va. Teletypewriter and telephone services co-ordinate the operations of all units as though they were under one roof.

Orders originating at sales offices are telephoned to the Wheeling headquarters of the company and are relayed over these private lines to the various producing units without delay. Specifications, shipping instructions, tool orders, contract details are quickly handled. These Bell System services bring to the activities of the Wheeling Steel Corporation greater flexibility and economy of operation, as well as a greatly increased speed in the servicing of accounts.

Teletypewriter Service—typing by wire—is used profitably by business organizations in every field. Messages typed on one Teletypewriter are instantly and accurately reproduced on all connected machines, no matter how far apart. Private line telephone service provides voice contact with offices, plants and other units throughout the business day. Both services are custom-fitted to the requirements of the individual user. Your local Bell Telephone Company will help you apply these modern business aids to your communication problems. Call the Business Office.

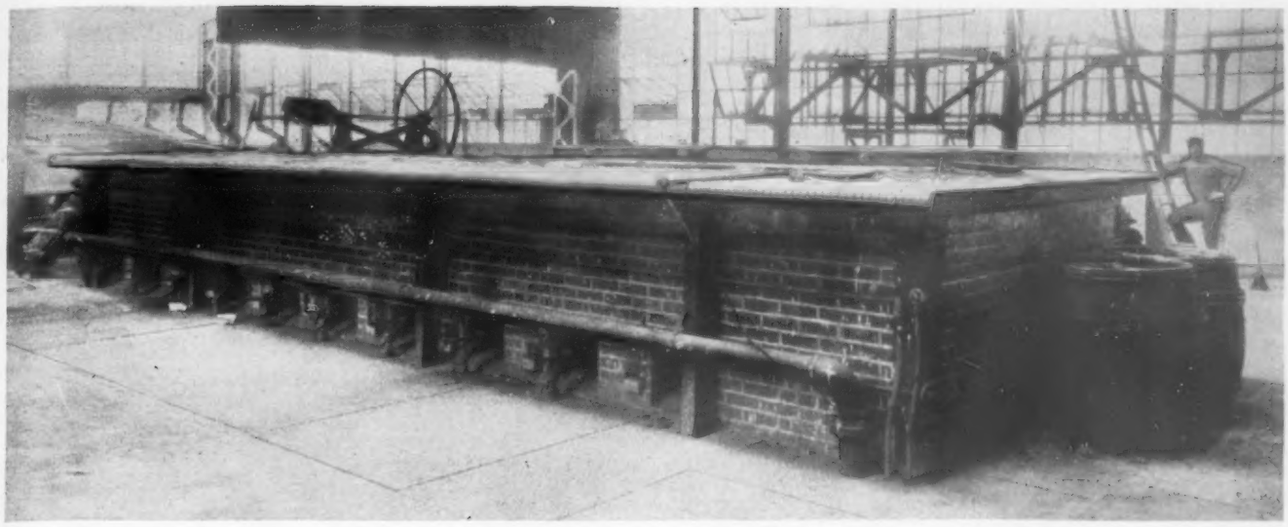


FIG. 1—One of the two 90-ton galvanizing kettles used for zinc coating members of steel transmission towers. Nine gas burners are installed on each side and the two sides are controlled separately with a thermocouple in the combustion chamber interlocked with a thermocouple in the kettle. The gas turn down is about 10 to 1 from full load to no load

GALVANIZING LARGE TRANSMISSION TOWERS

STEEL transmission towers for electric power lines are constructed from channels, angles and plates in a large range of sizes and weights and these members are galvanized to afford protection against corrosion. The various parts are fabricated in the shop and assembled in the field and since they must be shipped in sets, it is necessary to put them through the galvanizing pot approximately in the order of shipment. Overall output is high, but pot loading varies greatly and proves a handicap to economical operation. However, with properly designed equipment, incorporating automatic temperature control, the cost of operation can be maintained relatively low.

One of the large fabricators of transmission towers is the Canadian Bridge Co., Walkerville, Ont., a subsidiary of the United States Steel Corp., and to take care of its expanding business, the company in 1931 installed and placed in operation a modern galvanizing plant of unusually large capacity. This plant was designed by the company's chief engineer, Chauncey M. Goodrich, with the assistance of George Davies, mechanical engineer. The main galvanizing department is housed in a room 60 by 240 feet with a high, steeply-pitched roof and is provided with four large special ventilators in which fans are installed. Space is provided for two galvanizing units, each consisting of a 90-ton kettle, shown in Fig. 1, 27 feet long, 4 feet wide and 4 feet deep; six pickling tanks, one wash tank and one flux tank, arranged in proper sequence ahead of the kettle; and the necessary quenching tanks beyond the kettle.

Material handling equipment for each of the two units installed in the galvanizing room consists of four electric trolley hoists, with two stationary side pulpits in which the controls are located. Each hoist is of 3 tons normal capacity and the set of four units is arranged to lift the kettle itself in case of replacement without disturbing the furnace setting except, of course, where it is connected to the setting at the top. Special mechanical handling is provided for withdrawing and washing those longer structural members which are put in the bath loose. The kettle is fired with natural gas, nine burners being located on each side in

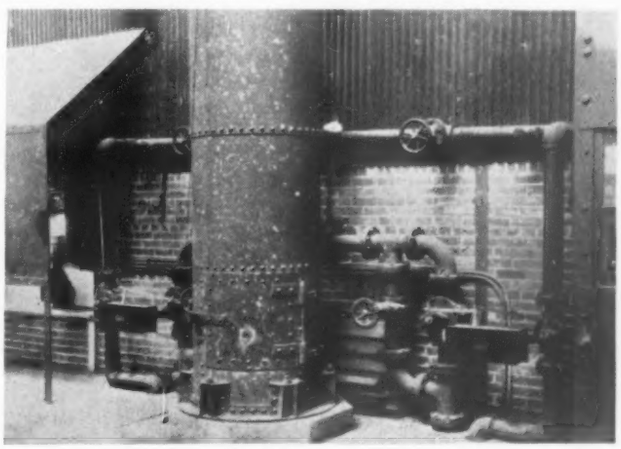


Fig. 2—Control equipment and piping for one of the galvanizing kettles. Valves for air are 5-inch and for gas 3-inch, these being operated by recording pyrometers

such manner as to prevent direct flame impingement. The air is preheated through a recuperator located in the underground duct from the furnace to the stack. When not in use the kettle is blanketed. Average full load capacity is 6 tons per hour, although a loading of 10 tons per hour has been reached.

One of the important features contributing to the low cost of operation is the automatic temperature control system installed by the Automatic Temperature Control Co., Philadelphia. The system uses the company's four-position control mechanisms in connection with a special electrical hook-up designed for furnaces of the pot or muffle type, where direct control from the pot would result in "hunting," due to time lag of the actuating instrument in response to fuel valve adjustments.

Requisites for a suitable control system for this galvanizing plant were specified by the engineers as follows:

1. Provision for limiting the maximum combustion chamber temperature in order to prevent undue heating of the kettle walls.
2. Close kettle temperature regulation at all loadings from full load to standby.
3. Provision for easily and quickly changing the working temperature of the kettle.
4. Control of furnace atmosphere in order to secure efficient combustion at all rates of loading.
5. The control equipment to require no manual attention except when changing the working temperature of the kettle.

Of the above requirements, the first was considered to be of prime importance as having a direct bearing on kettle life. In furnaces of pot or muffle type, there is an unusually long interval or "time lag" between any change in the rate of fuel supply and the corresponding response of the pot or work chamber thermocouple. This time lag in a pot furnace is due principally to the mass of metal in the pot and to the separation of the combustion and work chambers by the pot wall, with the result that when the pot temperature drops slightly and low contact is made by the pyrometer, the burners open up automatically to check this drop, but they cannot be closed again before the pot thermocouple responds to the effects of the increase in fuel.

This time lag for large pots or muffle furnaces often amounts to as much as 5 to 10 minutes or more, hence in a case where but a few minutes with the burners at maximum setting might have satisfied the condition, the burners must remain open until the actuating instrument calls for less heat by making its high contact—after expiration of the time lag period—and in the meantime, there is the possibility of overheating the pot wall above the critical temperature at which deterioration is rapidly accelerated, and at the same time of causing the pot temperature to over-ride considerably.

Under the conditions outlined, when the pyrometer makes high contact, thus closing the valves to a minimum setting, the tendency due to time lag is to maintain this minimum setting so long that when the pyrometer makes low contact, thus opening the valves, there is no immediate response as a heat reservoir must be built up in the combustion chamber before heat can be imparted into the pot, so the pot temperature continues to drop before it is checked. These under and above temperature swings have been termed "hunting."

To overcome the defects of hunting which are inherent in a single thermocouple system with control from the pot, the Automatic Temperature Control Co. has devised a system in which the control thermocouple is in the combustion chamber, but the control setting is automati-

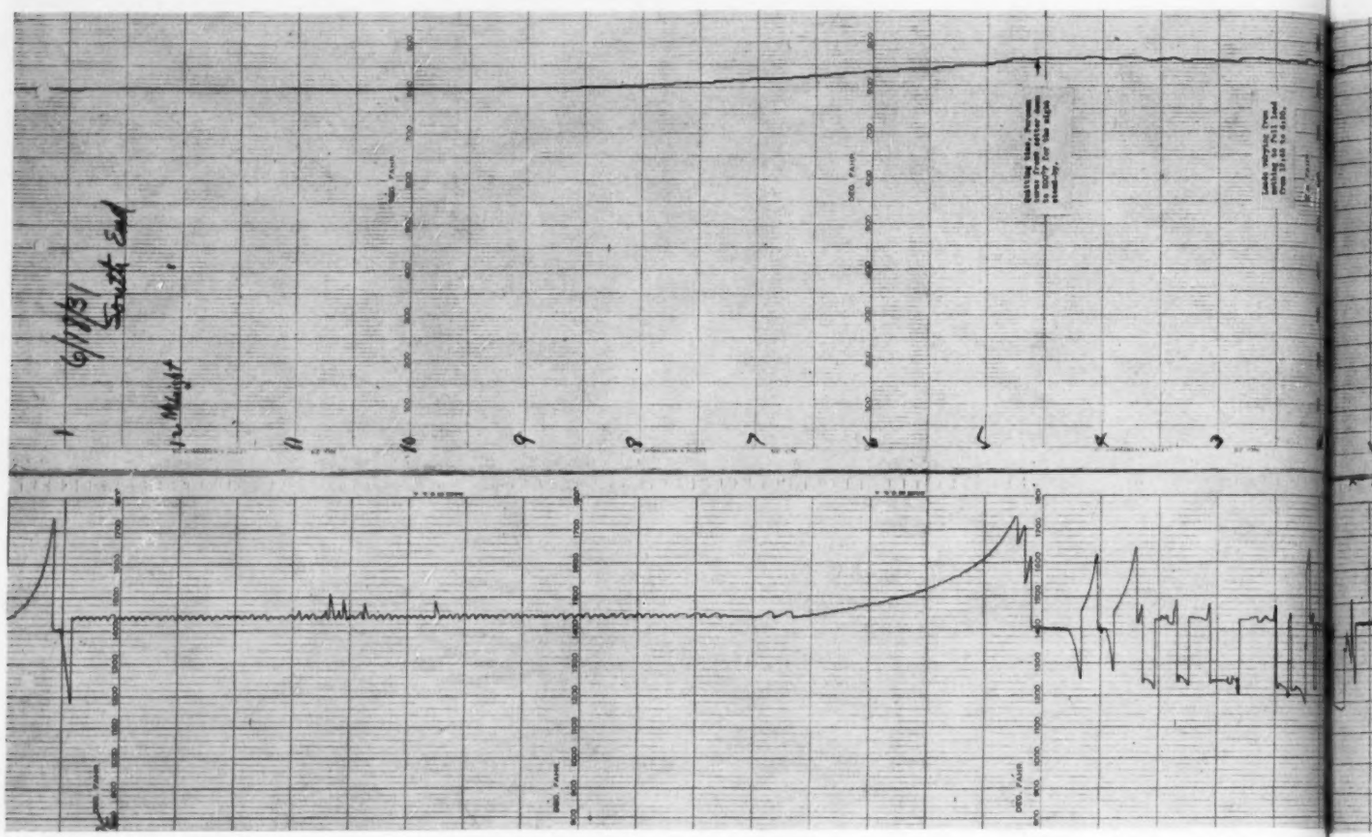
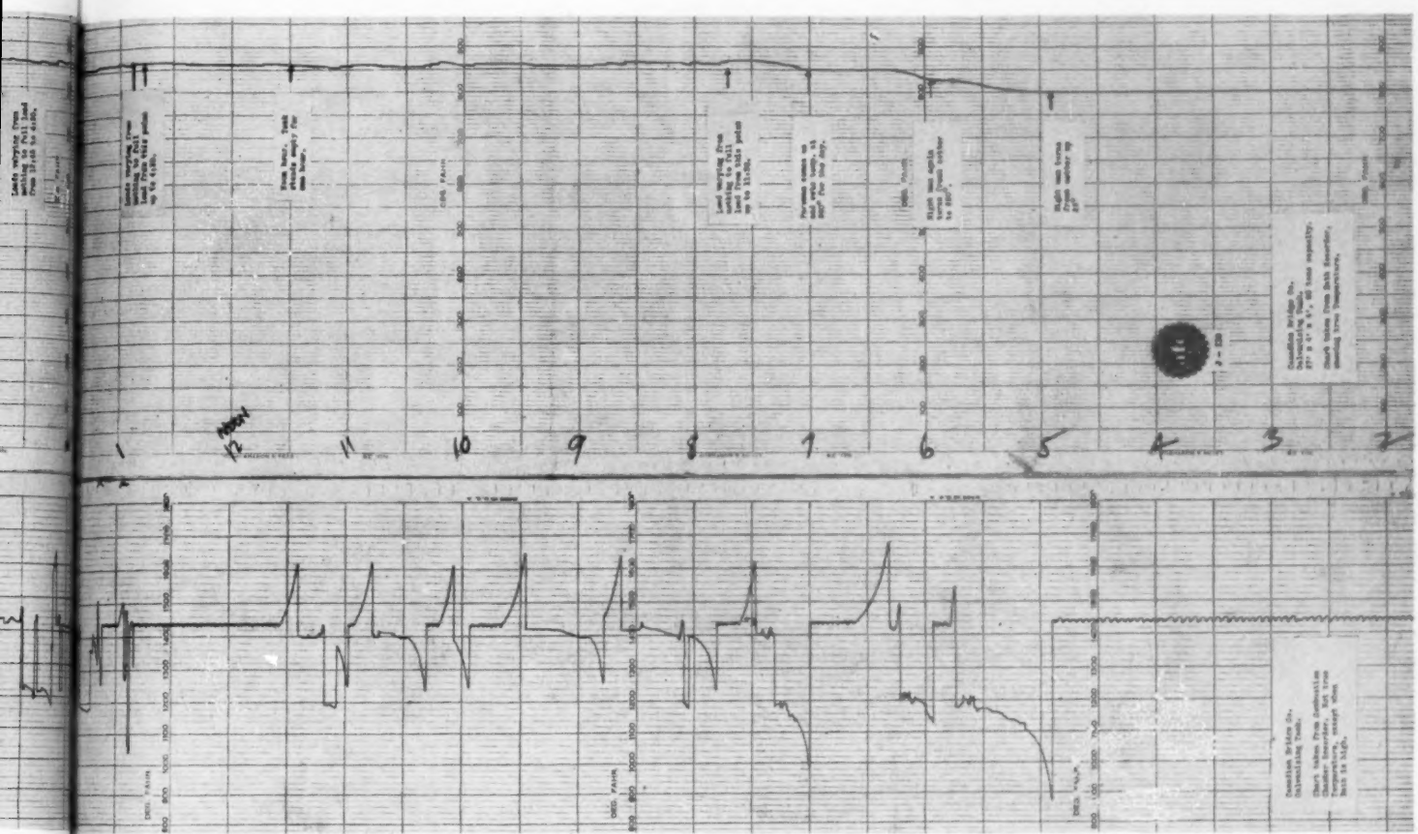


Fig. 3—Section of the recording pyrometer charts which show operation over a 24-hour period. The temperature curves [illegible] foll[illegible] is taken from the combustion chamber recorder [illegible]es no

cally adjusted by a thermocouple in the pot, to maintain the necessary differential to hold the desired pot temperature regardless of change in demand.

Operating conditions of the furnace are observed and the valve adjustments so made that the maximum differential or heat head will take care of the maximum load the pot will be called upon to handle, the minimum differential will prevent overshooting at no load and the intermediate differential will care for minimum of overshooting, a definite limit to the pot wall temperature and a capacity to respond to any loading from maximum to standby, without manual aid.

The chart in Fig. 3 from a Leeds & Northrup recording pyrometer, is a reproduction of a day's run at the Canadian Bridge plant and shows the true kettle temperature which is typical of results obtained with this layout. Fig. 3 also shows the temperature record during the night time standby, and this was a straight-line



...followed from right to left. The upper chart is taken from the bath recorder and shows true temperature; the lower chart ...es not show true temperature except when bath is high

various pot loadings below the maximum.

In other words, a slight change in temperature in the pot is very much magnified in the temperature setting of the combustion chamber and arrangements are made to set-up any desired temperature differential when the pot temperature is low, normal or high by an amount sufficient to actuate the respective contacts.

The instrument with thermocouple in the combustion chamber directly actuates the control valve mechanism with a minimum of time lag to hold the desired temperature setting. However, this setting which governs the heat head between combustion chamber and pot, is shifted automatically as the demand changes, by contacts in the instrument having its thermocouple in the pot. The result is a graph as may be noted at the left and right of the chart. The preceding night the control setting of the kettle instrument was adjusted to 800 degrees Fahr. and remained there until 5:30 in the morning when the watchman increased it to 825 degrees. At 6 a.m. the watchman changed the control setting to 850 degrees and when the foreman came on duty at 7 a.m. he adjusted for a working temperature of 860 degrees.

Up until 11:30 a.m. the kettle was working with irregular loadings, taking the work as it came, but with a high average production rate. In spite of the load variations, the bath temperature was held within close limits, as will be noted in Fig. 3. At 11:30 a.m. the loading stopped for the noon hour and while the average fuel supply dropped automatically to approximately one-tenth of the working rate there was no temperature overshooting.

From 12:30 until closing time the same irregular loadings took place as in the morning. At closing time which was 4:30 p.m., the foreman changed the control setting of the kettle to 800 degrees Fahr. for the night standby. However, due to the heat storage in the metal, it was not until 8 p.m. that the kettle reached this new temperature setting, but when reached, this temperature was maintained without change throughout the night.

The motor mechanisms operating the gas and air valves are of the Automatic Temperature Control company's four-position type which, in addition to the conventional minimum and maximum fuel settings, adjust for two intermediate valve positions or fuel rates, making it possible to give very close control at all loadings from maximum to no load. The chart, Fig. 3, shows a straight line holding temperature during both the noon hour and the night time standby periods. This straight-line record is not due to the valves being shut down to some low position where they remain stationary which would mean that the kettle would be out of control, but on the contrary, the valves are being adjusted automatically between the minimum and mid-minus posi-

tions throughout the noon hour and during the night standby periods so that the kettle is ready to care for an increased load condition promptly.

In view of the size of the kettle and the number of burners involved, it was considered best to handle each combustion chamber with a separate temperature controller. The two mechanisms are shown in Fig. 2 with their attached gas and air valves. The valves are of the V-port type and give a proportionate flow of gas to air at all positions of the control mechanism. As normally set-up, there are four valve positions and it is due to the ability of the mechanism to interpolate between these positions that the close control at all rates of loading is obtained.

The system of control described in this article has been applied successfully to large continuous lead and cyanide pots and it is equally applicable to continuous muffle-type furnaces and kilns where time lag makes it difficult to control without the differential control system.

Portable Micropyrometer Determines Melting Points and Viscosity

AN INGENIOUS micropyrometer, under development in the research laboratories of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., determines the melting points and viscosity of metals and alloys much more accurately than other devices of its sort. Designed particularly to study the characteristics of welding slag, the device is expected to find many applications in other fields. The equipment is shown in the accompanying illustration.

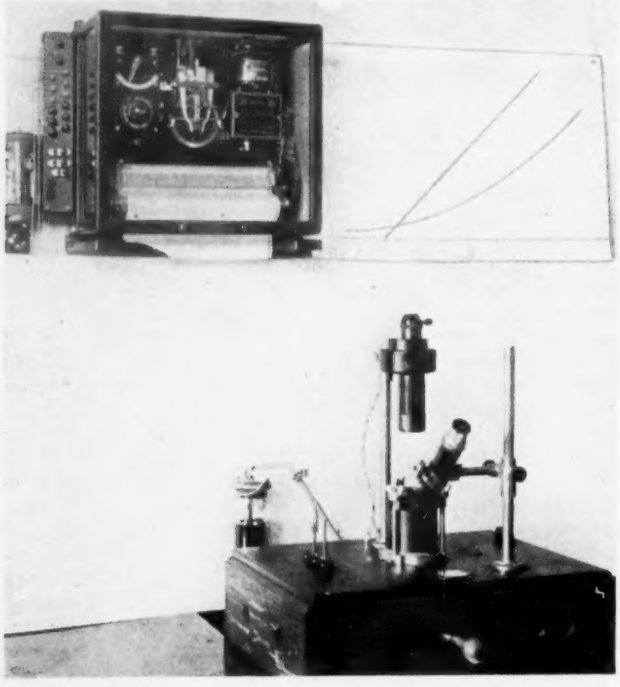
In operation, a minute test piece of welding slag or alloy is placed on a platinum strip, which is suspended from two insulated terminals, and current is applied from the low-voltage winding of a step-down transformer. The heating chamber is gas-tight since the melting point determinations are made in various atmospheres or a vacuum. Observation is made by a microscope with a magnification of 100 to 1 through a clear quartz window. When fusion is seen to begin, the current is shut off.

Temperature is automatically recorded on a chart by an ardometer, or total radiation pyrometer, which collects the heat rays passing through a quartz window and focuses them on a disk containing thermocouples connected to the recording instrument. Readings are taken in millivolts and converted to degrees Cent. through use of a curve previously plotted from readings taken of metals and alloys with known melting points.

The instrument consists of a heating chamber in the form of a brass cap clamped by thumbscrews to a brass base; a heating element, which is a platinum strip 0.5-inch wide and 0.0005-inch thick; a microscope for viewing the beginning of fusion; and an ardometer for registering temperature.

Control of the current is handled on the high-voltage side of the transformer; hence the current in the control apparatus is small. On the low-voltage side it has a range up to 40 amperes. A motor-driven rheostat, also operable manually, controls the voltage applied to the primary and provides a steady increase of current during a test. The motor speed may be varied to suit conditions.

The new instrument is not only more accurate than similar devices hitherto used, but is portable and occupies only a small fraction of the space required by its predecessors.



MELTING points of metals and alloys are determined accurately in the newly-developed micropyrometer shown here with its automatic temperature recorder

John Scott Award Goes to Westinghouse Engineer

Dr. Joseph Slepian, consulting research engineer, Westinghouse Electric & Mfg Co., East Pittsburgh, Pa., on June 13 was presented with the John Scott medal, certificate and premium of $1000 by the city of Philadelphia "for discoveries in the field of the deionization of gases and fundamental and outstanding inventions involving these discoveries."

Dr. Slepian's citation refers to conspicuous work in circuit interrupting devices and the use of his unique principle of deionization in the destruction of powerful and violent electric arcs. The Westinghouse company has incorporated this principle in a new line of circuit breakers recently announced. One of the smaller types of circuit breakers was described on page 37 of the May 30 issue of STEEL.

The John Scott award is recognized as an outstanding honor. It was established in 1816 when John Scott, a chemist of Saint Patrick Square, Edinburgh, Scotland, bequeathed to the city of Philadelphia $4000 with the stipulation that the income was to be distributed to ingenious men and women who make useful inventions.

Assisting the board of directors in making the award were Samuel M. Vauclain, chairman of the board, Baldwin Locomotive Works; Solomon M. Swaab, consulting engineer; and Herbert T. Herr, vice president, Westinghouse Electric & Mfg. Co.

Conference of Smaller Industries Is Planned

Special attention will be given to the problems of the nation's smaller industries in the program planned for the meeting of Silver Bay Industrial institute, Silver Bay, N. Y., July 8-22. The conference of smaller industries will be held July 11-16.

Reconstruction of BLAST FURNACE Improves Economy

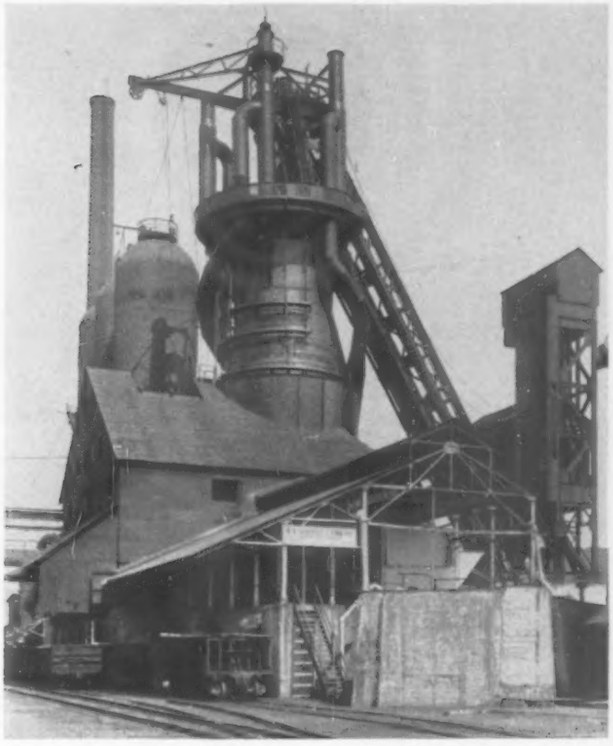


Fig. 1—Old uptakes and downcomers were replaced with modern types and two new air cooled bleeder valves were added in the reconstruction of this furnace

POSSIBILITIES of greater economy of operation by taking advantage of modern developments in blast furnace design, high efficiency hot blast stoves and new gas cleaning equipment have been demonstrated in the recent reconstruction of the blast furnace plant of the Wheeling Steel Corp. at Portsmouth, O. Improvements include new gas cleaning equipment, a sludge recovery system, zoned hot blast stove linings, electric mud gun, air mixing equipment and a selective stock revolving distributor.

The Portsmouth furnace was built originally in 1916-17 and has operated almost continually ever since, shutting down only for relining and patching. Reconstruction of the furnace below the mantle consisted of installing a new cast iron water-cooled hearth 9 feet deep by 23 feet 4 inches internal diameter, by 6 inches thick, made up of 12 water-cooled segments bolted together and reinforced by two heavy circular bands on the outside. A new tuyere jacket 1¼ inches thick by 7 feet 7½ inches deep by 23 feet 4 inches internal diameter was furnished, and five new bosh bands 1¼ inches thick with varying diameters to suit the bosh angle also were provided.

Former top construction, comprising low baffled-type uptakes and downcomers, was replaced with four modern-type uptakes and downcomers, and two new air-cooled bleeder valves were added. A new cone ring which connects the shell to the cast steel seat ring, as well as a large bell and hopper were other additions to the furnace as shown in Fig. 1.

A complete new brick lining was installed, with 14 rows of removable bronze cooling plates set in the brickwork above the mantle and complete new extra heavy water piping supplied for connecting up the entire cooling system.

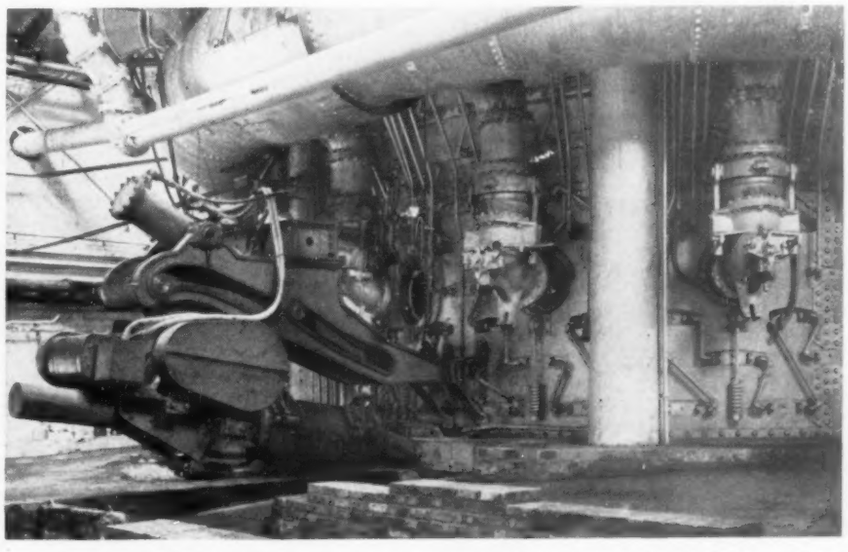


Fig. 2—An automatic electric mud gun was provided to permit operation of the furnace without fluctuating pressure at casting time

Dust Catcher Rebuilt

The old dust catcher, of the hour glass type, was changed to a straight cylindrical shell so as to increase both its capacity and efficiency. Following the dust catcher was a Brassert-type 15-foot diameter gas washer which was reconstructed by placing new steel rings on top, replacing the old wood hurdles with new ones, adding ceramic distributing members and a new spray system, thus changing it to an efficient cyclonic tower washer.

New sludge recovery pits were installed to recover the solids from the gas washing water.

Immediately behind the washer is provided a low power Brassert-type disintegrator of 40,000 cubic feet per minute capacity, reconstructed from the old horizontal dryer. The disintegrator is arranged to float on the gas line; that is, it cleans all

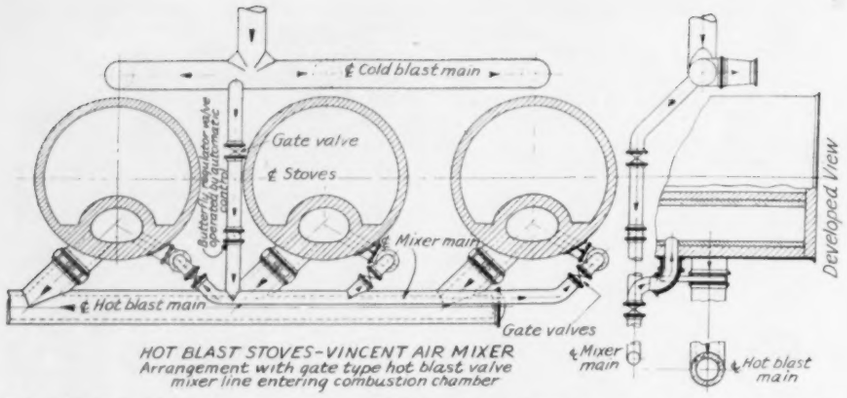

℄ Cold blast main
Gate valve
℄ Stoves
Butterfly valve operated by automatic control
℄ Mixer main
℄ Hot blast main
Gate valves
Developed View
HOT BLAST STOVES-VINCENT AIR MIXER
Arrangement with gate type hot blast valve mixer line entering combustion chamber
℄ Mixer main
℄ Hot blast main

Fig. 3—Hot blast stoves were provided with Vincent-type air mixer in which mixer air is put in the combustion chamber ahead of the hot blast valves

the gas required for the stoves and the surplus gas is diverted to the boiler main where it is mixed with the excess tower washed gas, giving a relatively clean boiler gas. A constant pressure is maintained on the stove gas main at all times, regulated by an Askania-type automatic control system.

Two new 24 x 100-foot hot blast stove linings of the Brassert high efficiency zoned type, with heavy insulation, were installed. The bottom supports were made of a combination of brick and steel, which supports the checker construction of the octagonal tile with zoned graduated filler inserts. Heating surface of each reconstructed stove is 206,152 square feet, said to represent the largest heating surface per unit of any in the world.

A new automatic electric mud gun was provided to enable the furnace to be operated without fluctuating pressure at casting time. This gun is illustrated in Fig. 2.

New Air Mixer System

Stoves were provided with a Vincent-type air mixer, shown in the diagram, Fig. 3. The mixer air is put in the combustion chamber ahead of the hot blast valves, which results in equal temperature distribution of air at all tuyeres and protects the hot blast valves against high temperatures. A regulator was installed for automatically controlling the hot blast temperature within close limits.

The filling system, of the bucket type, was provided with an electric selective rotating distributor at the lower end of the skip, an effective device designed by the blast furnace superintendent at the plant, Mr. Karl Steinbacher. The distributor is claimed to assure perfect distribution with the bucket type of hoist.

Soon after the plant was reconstructed the furnace was blown in and has been in operation since. However, due to business conditions operations have been intermittent and on reduced wind. Even under these conditions the results attained have been excellent, showing an appreciable reduction in coke consumption, more uniform grade of iron produced, increased metallic recovery and more uniform operation of the furnace.

Engineers and contractors for the entire reconstruction were H. A. Brassert & Co., Chicago. Steel was furnished by McClintic-Marshall Corp., Pittsburgh; brick by General Refractories Co., Philadelphia.

Paint Resists Heat, Acid and Abrasion

CLAIMS resulting from tests and various practical forms of experimentation have focused attention to a new paint for industrial construction and machinery, now being marketed by the Eastern Mabelite Inc., 225 Mercer street, New York. These claims point to high heat and acid resisting and abrasive qualities, with the paint especially effective as a coating for ship bottoms, for electric insulation and for oil tanks and tank cars, where it is claimed to prevent corrosion on exterior and interior surfaces.

Tests, company officials declare, reveal that a metal sheet with one thin coating of paint resisted the passage of 1600 volts of alternating current; that a piece of soft steel, scraped across a painted surface, was abraded by the paint; and that a galvanized iron pipe coated with the paint was heated to an orange color without blistering.

These and numerous other experiments appear to find no lack of substantiation. Pieces of wood, it is said, were found in their original condition after having been painted with this particular covering and immersed in New York Bay for eight months. Galvanized iron buildings have been painted with it and corrosion inhibited in a 5 year test.

The paint is made of a pigment which is mined as an ore in the Wichita Mountains, Comanche county, Okla. The ore deposit, now said to comprise millions of tons, came to the attention of a former cowboy who had noticed that Indians pulverized fragments and used the powder for pigment. Subsequent technical tests indicated that the deposit was of considerable commercial value and a mining company was formed at the source with a manufacturing and distributing company recently established in New York.

In its present unchangeable, and completely oxidized state, the ore is said to be wholly inert and chemically stable. Its component elements include ferric oxide, silicon dioxide and alumina. The ferric oxide impregnates the other compounds resulting, it is said, in a wide dispersement of color particles and a high degree of opacity.

The silica is said to be of a tough, amorphous type which, when ground to fine particles and blended together in a paint vehicle, congruously rearranges itself to form a homogeneous coating or seal. The almuina in the mixture, it is further stated, permeated as it is with ferric oxide, supplies a fine unctuous material which when associated with a vehicle holds the mass together, fills the surface crevices and prevents porosity of the paint film.

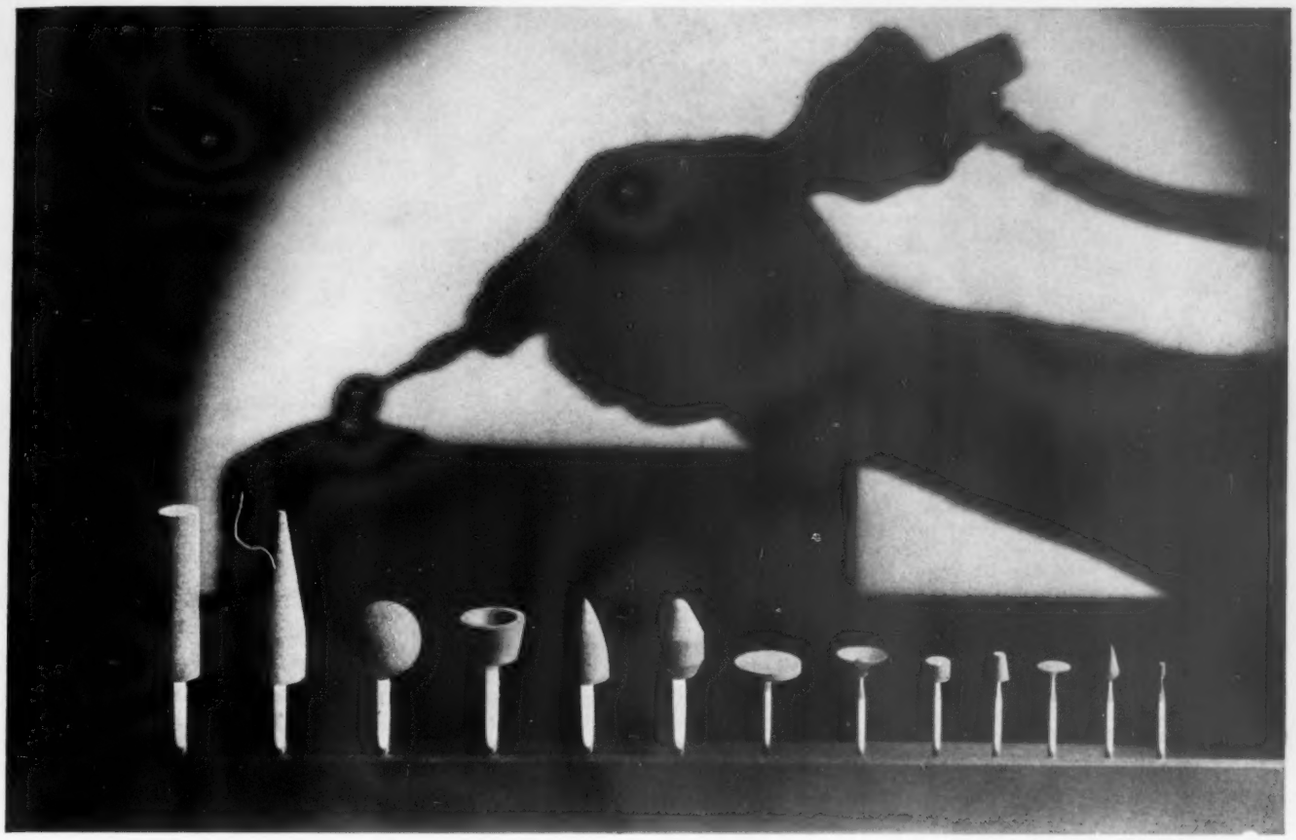
Protective Coatings of Metal Sprayed On

Coating of one metal with a paint-like spray of another metal was demonstrated by L. E. Kunkler of Los Angeles at the first Southwide Welding conference held in Auburn, Ala., recently. The process consists of feeding the coating metal in the form of wire into a gun in which it is melted in an oxy-acetylene flame and atomized.

The molten particles are blown on the base at a speed of approximately 5 miles per minute and they cool immediately on striking the surface being coated. These coatings are intended primarily for protective purposes, but are equally acceptable in the decorative field.

Ornamental iron and buildings themselves can be sprayed with bronze, brass, nickel, silver, aluminum and other metals and alloys. Among materials which can be coated as easily as metal are wood, paper, cement, terra cotta, plaster, porcelain and glass.

New officers for the Philadelphia chapter of the American Society for Steel Treating have been elected as follows: Chairman, N. L. Mochel, Westinghouse Electric & Mfg. Co.; vice chairman, T. J. Moore, Edgar T. Ward's Sons Co.; and secretary-treasurer, A. O. Schaefer, Midvale Co.



You'll Like These Mounted Wheels and Points

THEY are made of 38 Alundum abrasive with its well-known features for grinding die and tool steels. A special spindle design and a special cement assure a securely anchored mount. With ordinary care Norton points and wheels can be used down to a very small stub — an economy feature that is very important.

Norton Mounted Wheels and Points are available for all of the popular makes of grinders — both internal and the air, electric and flexible shaft types of portable — in all of the popular sizes and shapes, grains and grades.

For grinding cast iron, brass, copper and similar materials there are wheels and points of Crystolon abrasive.

NORTON GRINDING WHEELS

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NORTON PRODUCTS — Grinding Machines; Lapping Machines • Grinding Wheels; Abrasives for Polishing; India Oilstones, Pulpstones • Laboratory Ware, Refractories; Porous Plates • Non-slip Tiles and Aggregates

Propose Safeguards Against Galvanized Embrittlement

EMBRITTLEMENT of hot galvanized structural steel is caused by the cold working stress resulting from punching rivet holes, and to the temperature incident to galvanizing rather than to any impregnation of zinc. This is the conclusion reached from a research conducted under the auspices of the American Society for Testing Materials at Battelle Memorial institute, Columbus, O.

The report of the investigation was presented before the thirty-fifth annual meeting of the Testing Materials society in Atlantic City, June 20-24, by Samuel Epstein, metallurgist of the Battelle institute. According to Mr. Epstein, the only dangerous conditions encountered in commercial carbon steel angle sections made from open-hearth product was in thick sections, ranging from ¾ to 1 inch in thickness and with 15/16-inch holes punched in the sections.

Simple Solution Found

The research was launched after it was discovered accidentally several years ago that samples from a consignment of steel which had passed specifications satisfactorily and which was to be used for electrical transmission towers would snap in two when bent about a bolt hole. The solution was found to be simple and inexpensive. It is to drill or ream bolt or rivet holes in the heavier sections and thereby to remove the material affected by cold work in the punching.

Guided by the results of this research, the society's committee on zinc coating of iron and steel inserted in its report tentative recommended practices for safeguarding against the embrittlement of hot-galvanized structural steel products. It also recommended a test procedure for detecting embrittlement in hot-galvanized structural steel angles.

Portions of the committee's report are as follows:

Any form of cold working reduces the ductility of rolled steel. The reduction in ductility of galvanized material depends upon the type and nature of the steel and the thickness of the sections. Bessemer steel in the smaller sections, from ⅛ to 5/16 inch in thickness, may not be susceptible to serious embrittlement. Open-hearth steel in the smaller sections is not affected from a practical point of view. Intermediate size sections up to 11/16 inch in thickness are seldom materially affected; and while the heavier sections ¾-inch and over tend to be susceptible to embrittlement, they are not always seriously affected.

Pickling roughens the surface and, therefore, has some effect in reducing ductility, but its major effect is a result of hydrogen absorption. The previous treatment of the steel, for example cold working, determines the magnitude of the effect to a large extent. Increasing the temperature of the pickling bath, as well as prolonging the immersion period, increases the resulting embrittlement. Aging in service or heating to 300 degrees Fahr. brings about complete recovery from the effect of hydrogen.

Penetration Minor Factor

In the operation of galvanizing, there is no injurious loss of ductility unless the material has previously received severe localized cold working. When loss of ductility occurs after such cold working, it is due mainly to heating to the galvanizing temperature and to a minor degree to the penetration of zinc or iron-zinc alloy.

The tendency of steels toward brittleness is the greater the lower the temperature, and this tendency is increased by cold working and by notch effects. The same steels may be quite ductile at one temperature and much less ductile at a lower temperature. All plain carbon steels become brittle at liquid air temperatures. Some steels lose ductility rapidly as the temperature drops below ordinary room temperature. In others this rapid loss does not occur until temperatures below 0 degrees Fahr. are reached. Hence, the temperature must be controlled in testing. In fabrication and erection it should be remembered that low temperatures involve increased tendency toward brittleness.

Only steels produced under the trade designation of open hearth should be used for galvanizing if any cold working without subsequent annealing or stress relieving is to precede the galvanizing.

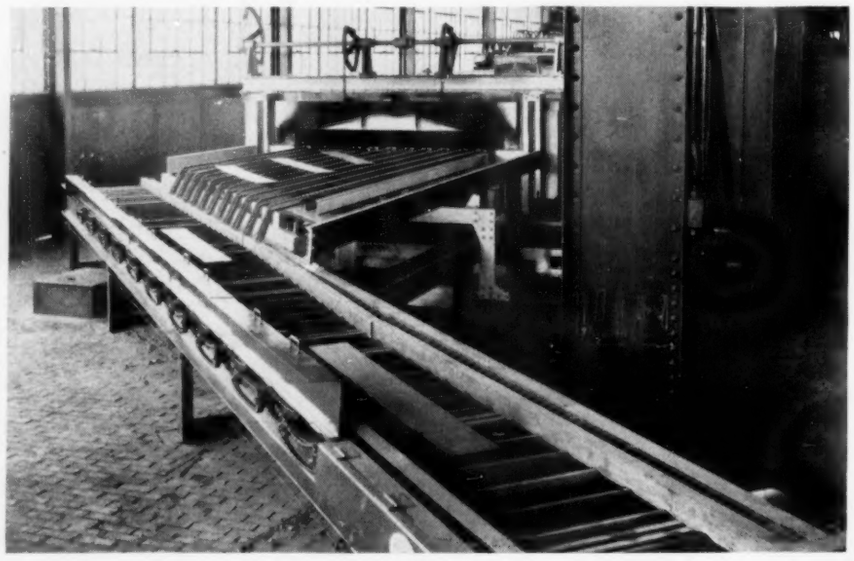
Physical Properties Altered

The physical properties of structural steel are changed by cold working. Certain properties are raised; others are lowered; thus, hardness is increased and shock resisting properties are decreased. Cold working may be of the nature of rolling, bending, upsetting, punching, or shearing, etc.

For intermediate and heavy shapes and plates, sharp bending should preferably be done hot, but if done cold the material should subsequently be annealed or stress relieved. Cold processed rods and bolts may require stress relieving.

The smaller shapes, including thickness up to ¼ inch, may be cold worked without subsequent annealing or stress relieving. Shapes 5/16 to 11/16-inch in thickness are not seriously affected as to serviceability by cold working in punching if the punching is done under good shop practice. The heavier shapes, ¾-inch and over, should be reamed after punching, or be drilled.

Progress reports were offered on



ROLLER CONVEYOR SERVES NORMALIZING FURNACE: At the discharge end of this normalizing furnace in the plant of the Sharon Steel Hoop Co., Sharon, Pa., a live roller power chain-driven conveyor is used to carry strip steel to the roller leveler. The conveyor, installed by the Mathews Conveyer Co., Ellwood City, Pa., has a variable speed range from 150 to 300 feet per minute. Rollers of the conveyor tread are of heavy-gage seamless steel tubing of 2 5/16-inch diameter set on approximately 7½-inch centers, alternate rollers being driven. All rollers are equipped with pressure-lubricated ball bearings which incorporate a labyrinth seal and grease retainer specially fitting the unit for its conditions of service

Anti-Friction Bearings—giant or midget—*Penola Anti-Friction Lubricants are used everywhere to prolong the life of and provide an effective lubricating film for anti-friction bearings of all sizes.*

FROM SEWING MACHINES TO STEEL MILLS . .

● Everywhere, throughout the world—in all types of plants—where it is essential that anti-friction bearings be efficiently lubricated, grease sealed and protected against corrosion, you will find Penola Lubricants in constant use.

Penola Heavy Duty Roller-Bearing Lubricant, X Series, is widely used throughout the steel industry, wherever high speeds, heavy loads and increased bearing pressures are encountered. Developed especially by the Pennsylvania Lubricating Company with the coöperation of the leading roller-bearing engineers to meet these extreme pressure conditions, this product effectively reduces wear and adds to the life of all types of present-day roller-bearing units. It is approved and recommended by leading bearing manufacturers.

Penola Anti-Friction Lubricant is in world-wide use. All types of ball and roller-bearing equipped machinery—electric motors, blowers, machine tools, vacuum cleaners, textile machinery, etc.—are efficiently lubricated with this product. Its range of application is wide—temperatures from below zero to over 250° F. and at prevailing speeds of operation. Penola Anti-Friction Lubricant is in every way a high quality product. It stands up under the most adverse conditions.

Information on both these products will be forwarded at your request. We shall also be glad to send a member of our engineering staff to discuss your particular lubrication requirements and make recommendations.

● Penola Heavy Duty Roller-Bearing Lubricant, X Series, *is used for the lubrication of the huge steel mill bearing shown above. We have a lubricant for all sizes of roller bearings, down to the tiniest.*

PENNSYLVANIA LUBRICATING COMPANY

PITTSBURGH, PENNSYLVANIA

1885—*Lubrication in the Steel Industry*—1932

A subsidiary of the Standard Oil Company (N. J.)

corrosion tests being conducted for a number of years in various sections of the country and under varying conditions of atmosphere and immersion, under chairmanship of F. N. Speller, National Tube Co., Pittsburgh.

Studies of methods of noting the effectiveness of zinc coatings, notably the Preece test, employing copper sulphate intermittently as an immersion medium were discussed in a paper by H. H. Walkup and E. C. Groesbeck, bureau of standards, Washington. Fatigue tests to show the effect of zinc coatings on endurance properties of zinc coated steel were summarized by W. H. Swanger and R. D. France, also of the bureau.

The report of the research committee on fatigue of metals, under chairmanship of H. F. Moore, University of Illinois, Urbana, Ill., covered a summary of existing knowledge on fatigue phenomena in metals, and the significance and limitations of test results were explained. Fatigue failures are common in machine parts, rare in structures and pressure vessels take an intermediate classification in susceptibility. The term fatigue of metals is designated to refer only to actual failures of metal parts by a spreading crack.

A series of tests made by repeated loading of rail steel carried on jointly under auspices of the A. S. T. M., the American Railway Engineering association and the Railway Manufacturers' Technical committee were reported by H. R. Thomas and J. G. Lowther, University of Illinois.

Lubrication of Laminated Mill Bearings Lowers Co-efficient of Friction

COMPOSITION bearings lubricated with tallow have less static friction than brass bearings under the same conditions, stated W. B. Shirk, steel mill engineer, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., in speaking on laminated fibrous bearings at the twenty-eighth annual meeting of the Association of Iron and Steel Electrical Engineers, Pittsburgh, June 20-23.

Low journal speeds, Mr. Shirk explained, require high viscosity lubricants. Since tallow has a high viscosity and its not readily pressed out of the bearing, he continued, it is only natural that the static friction of bearings lubricated with tallow will be less than dry bearings under similar static load conditions.

How Load Is Overcome

If conditions arise where an increased starting load is encountered, the speaker said, the mill may be started satisfactorily by backing up on the mill stand screwdown, or by backing up on the mill and then starting by taking up the slack in the mill. Field experience has proved that increased life of this type bearing is obtained if water only is used as a lubricant. In order to obtain the maximum bearing life for any type of bearing the acidity of the cooling water should be reduced to less than 15 parts in a million. The acid, he explained, in the water does not attack the composite bearing, but has a tendency to roughen the roll neck.

Comment from the floor brought out the fact that bearing life is increased from two to three times merely by chamfering the bearing at the lubricant entrance and by using a lighter body lubricant. A lubricant supplied to a well-polished shaft supplies a hydraulic film which rides the shaft on its bearing.

At the closing session of the meeting, K. T. MacGill, Joseph T. Ryerson & Son Inc., Chicago, spoke on " Reducing the Bearing Cost per Ton of Steel Rolled." In the course of his remarks the speaker described a resinol bearing and its construction which withstands a crushing pressure of 32,000 to 36,000 pounds per square inch, and absorbs shocks without cracking. Installation of composition bearings, he stated, effects lower power requirements and serves to increase the capacity of the mill.

G. A. Eberhardt, Symphane Corp., Oaks, Pa., in discussing nonmetallic roll neck bearings contended that the best results are obtained when this type of bearing is made in two or more sections which when placed around the roll neck affords a space to serve as a water reservoir. Each section is set in a chuck to which water is piped for the lubrication of the roll neck. The thrust bearing, as well as the radial bearing, also is built with spaced sections or strips. In conclusion the author directed attention to lower initial cost per hour on this type bearing, a saving in fewer shutdowns for renewal and reduced lubricating and power costs.

Explains Interesting Tests

Tests to determine friction characteristics of laminated materials were outlined by H. M. Richardson, General Electric Co., Schenectady, N. Y. These tests, he stated, were made under pressures ranging from 500 to 2000 pounds per square inch and with rubbing speeds from breakaway to 3000 feet per minute with various types of lubrication including water only, combination of water and block grease, soft grease only and flooded oil lubrication. While final conclusions have not been reached he stated the coefficient of friction with water lubrication or combination of water and block greases, ranges from 0.004 to 0.008 for pressures from 500 to 2000 pounds per square inch and rubbing speeds from 250 to 3000 feet per minute. Below 250 feet per minute, Mr. Richardson explained, the coefficient of friction rises rapidly.

Grind Roll Necks

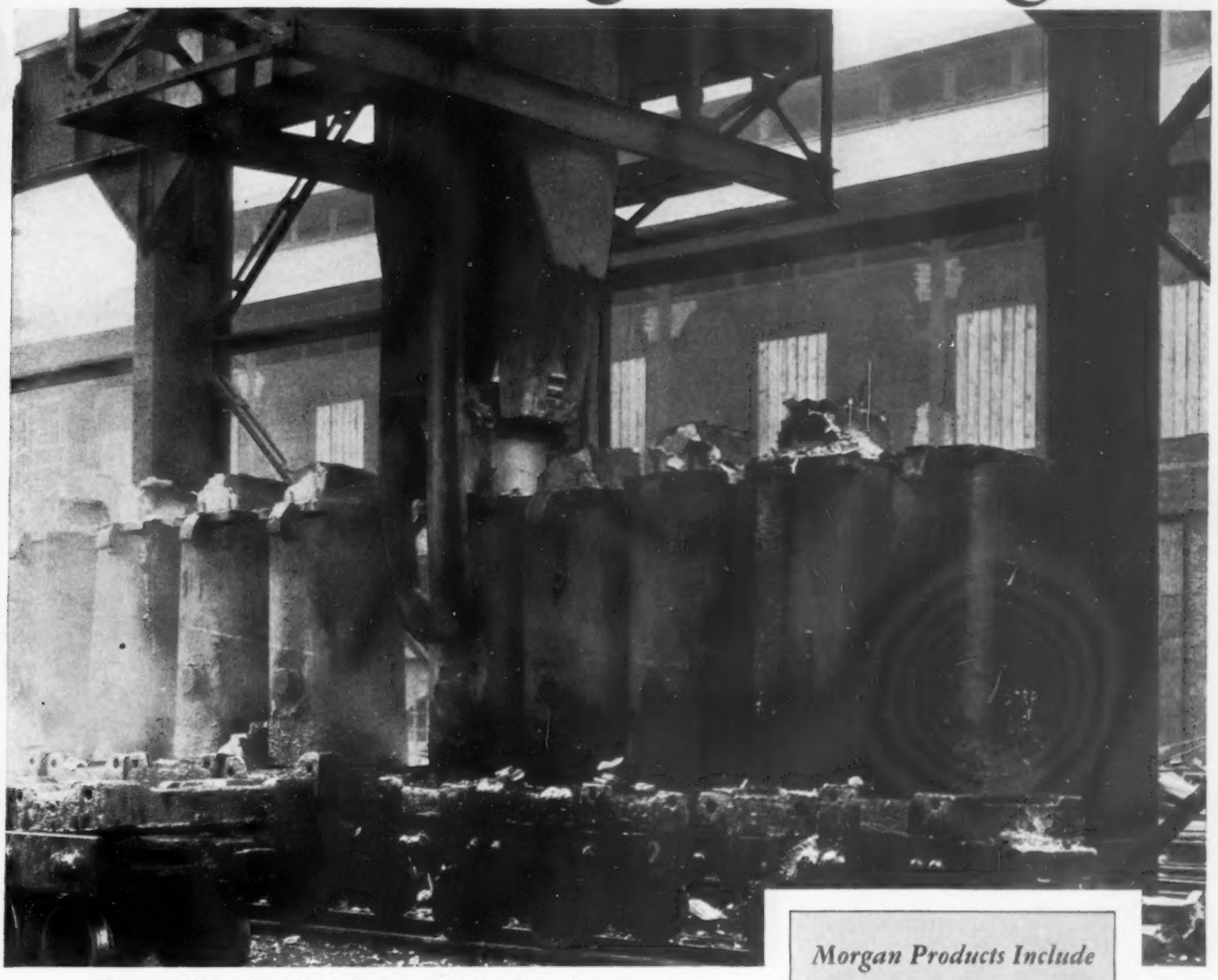
The author emphasized that if roll necks are extremely rough when they initially are placed in the bearing, there likely will be a certain amount of cutting on the bearing when the mill is started. He, therefore, recommended that the roll necks be ground before installing bearings of the composition type. According to the curves shown on the screen, the use of a high-grade grease reduces the starting friction materially. One of the important points developed by the investigation being conducted at Mr. Richardson's plant is the desirability to use grease in conjunction with water for lubricating bearings of the laminated type. The use of grease in combination with water, not only protects roll necks from rusting, but also provides a film which lowers the starting coefficient of friction.

At a plant in the Pittsburgh district with skelp mills equipped with composition bearings, the early practice of starting up the mill over week-end shutdowns necessitated slackening up the screwdowns to prevent the breakers being thrown out when power first was applied. However, by turning off the water for lubricating the bearings just before the mill is shutdown and swabbing the roll necks with grease, the difficulty experienced in hard starting has been eliminated entirely according to the superintendent of the plant.

Casts Large Screwdown Nuts

Thought to be the largest aluminum-bronze alloy castings ever made in the middle west, a number of large cast screwdown nuts for a rolling mill in the Chicago district were shipped recently from the foundry of the Ampco Metal Inc., Milwaukee. Each casting weighed 4700 pounds in the rough, necessitating the pouring of 7500 pounds of molten metal to provide for shrinkage. Combined capacity of four electric and eight crucible furnaces was required to melt the metal.

BUILT BY MORGAN *Engineering* » »



MORGAN *Screw Type Ingot Stripper, stripping big end up ingots*

THE Morgan Screw Type Stripper has been redesigned to strip three distinct types of ingots. **1.** Big end up with hot top, *illustrated.* **2.** Big end up with sink head. **3.** Small end up or regular type. Several Morgan Strippers of this kind are in successful operation in leading steel plants where radical reductions in stripping time and less heat loss between ingot mold and soaking pit mean widening the margin between production costs and selling price. Full information regarding this improved Stripper will be furnished on request.

THE MORGAN ENGINEERING COMPANY

New York, 25 Broadway **ALLIANCE, OHIO** *Pittsburgh, 1420 Oliver Bldg.*

Morgan Products Include

BLOOMING MILLS
PLATE MILLS
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STRUCTURAL MILLS
ELECTRIC TRAVELING CRANES
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INGOT STRIPPING MACHINES
LADLE CRANES
SOAKING PIT CRANES
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STEAM HYDRAULIC FORGING PRESSES
SPECIAL MACHINERY FOR STEEL MILLS

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DESIGNERS
MANUFACTURERS
CONTRACTORS

WRECKING bars are used extensively for opening heavy packing crates. They constitute a large proportion of wrecking tools, the manufacture of which requires 4000 to 5000 tons of steel annually

Large Uses of Steel In Small Ways

221st Article ◆ Wrecking Tools

ALTHOUGH building construction represents one of the major sources of steel consumption, building destruction is not accomplished without the use of a surprisingly large tonnage of steel products. To a considerable extent, wrecking of structures is a manual operation and in this process the wrecking bar and wrecking chisel are commonly employed, being particularly useful in prying apart boards and in removing nails and spikes.

Average Life Five Years

To supply wreckers with these tools requires the production of 4000 to 5000 tons of steel annually, it is estimated. The average life of a bar or chisel is placed at around five years. Demand for these products recently has felt the effects of quietness in building work. Wrecking tools also are an aid to new construction, such as in the dismantling of scaffolding and concrete forms.

Wrecking bars usually are made from high-carbon, hexagon or octagon steel bars and vary from 2 to 3 feet in length. Alloy steels ordinarily are not used in the manufacture of these tools. The bar diameter commonly ranges from ½ to ⅞ inches and the weight from less than a pound to around 7 pounds. These tools have a gooseneck claw to facilitate ripping of boards and removal of nails, the curved end providing leverage. Concrete chisels, employed for breaking through sections of concrete or street pavements, are of heavier construction, usually being an inch or more in diameter. Wrecking and ripping chisels are other variations of tools commonly used in dismantling wooden parts, the latter having a nail slot in the claw end.

In a typical process of manufacturing a wrecking bar, the stock first is cut to length and the chisel end is rolled to size. After the claw end is formed, the nail slot is punched on a press. The claw may be either spoon-shaped, specially designed for pulling spikes, or flat for ripping purposes, and include a long, narrow slot for pulling nails. A bending operation shapes the gooseneck on the claw end of the bar. Both ends are tempered and the tool is completed upon finishing or painting.

Nickel-Clad Steel Used for Barrels

NICKEL-CLAD steel is being used by the Standard Oil Co. of New Jersey in the manufacture of 55-gallon gasoline barrels at Bayonne, N. J. Forming the lining, the nickel is used to prevent the formation of oxide and thus greatly extend the life of the container.

Nickel-clad steel is used in the same gages as the black or galvanized steels ordinarily employed, 13-gage metal for the body and 12-gage for the heads, with the layer of nickel comprising about 10 per cent of the metal. The weight of the nickel-clad steel barrel is comparable with those of the other types, the black steel barrel weighing 89 pounds and the galvanized 95½ pounds.

Fabrication of nickel-clad steel requires no special equipment or attention, the process, it is said, being much the same as for the galvanized or black steels. The principal deviations in the fabrication and assembly processes are in the welding, which is done with nickel, in the use of monel flanges and in the elimination of such galvanizing or pickling processes as might otherwise be required.

Rolled into a shell, the material is welded along the longitudinal seam and then subjected to internal hydraulic pressure by the application of heavy steel dies so as to give the cylinder its barrel or bulge shape. This measure is intended not only to impart strength but to make for the easier handling of the container. The heads are sealed to the shell and then brazed.

The use of nickel-clad steel for this purpose still is experimental. While there is reason to believe that the life of the container will be materially extended, there, of course, has been no way of establishing for sure how much; and it is a matter of record that thousands of the ordinary steel barrels produced at the Bayonne plant have been in service 15 to 25 years, some longer. Nevertheless, and despite the fact that the nickel-clad steel barrel costs about four times as much to produce, company officials look for a good market for this product when general conditions become more normal.

British Foundry Institute Names New Officers

Victor Stobie, Stobie Steel Co. Ltd., Dunston-on-Tyne, England, was elected president of the Institute of British Foundrymen at the twenty-ninth annual meeting of the organization in Newcastle-on-Tyne, June 8-9.

C. E. Williams, John Williams & Sons (Cardiff) Ltd., Cardiff, Wales, was named senior vice president, and Roy W. Stubbs, Joseph Stubbs Ltd., Manchester, junior vice president. A. Harley, Daimler Co. Ltd., Coventry, was elected a trustee to take the place of the late Oliver Stubbs.

As a result of their services to the institute over a period of years, honorary life memberships were conferred upon F. J. Cook and John Shaw.

The American exchange paper, "High-Test Cast Iron in the United States of America," was written by R. S. MacPherran, Allis-Chalmers Mfg. Co., Milwaukee, and was presented in abstract by Vincent Delport, European manager of STEEL, London.

Making the Most of

METHODS AND MATERIALS

A NEW chemical product, having practically all the characteristics of rubber but which is not affected by solvents as is rubber, is finding commercial application. This material, an olefin-polysulfide product, has unusual resistance to the deteriorating action of most gases and liquids, particularly gasoline and oils. Like rubber, it is compounded and vulcanized in processing finished articles. Among its uses are covering for ignition wire for protection against oil and corona conditions, paint spray hose, gaskets for electrical refrigerators, linings for tank cars conveying acids and solvents, protective covering for underground cables, gaskets and gas tanks. It does not age or perish in storage, oxygen does not appear to affect it, and when exposed to sunlight it does not check.

THE practice of hard surfacing punches and dies results in decided economies in many operations. Many times it is possible to salvage an old die from scrap, rebuild it, hard surface it, and put it back into service where it will outlast a new die many times over. Practically all kinds of hot trimming dies can be rebuilt with hard facing material and used again and again. One large automobile manufacturer has found it possible to obtain six times as many generator poles from a single die hard faced. An increase in life of 14 to 1 is obtained from hot trimming dies for brake pedals. Dishing and flanging punches and dies used on soft steel plate can be made of mild steel, hard faced only on the cutting edges, thereby reducing the initial cost.

\$ \$ \$

Extremely high pressures brought about by modern trends in design have created a need for machines to determine accurately the load carrying capacity of lubricants. A new wear and lubricant tester developed recently is designed to show the comparative load carrying capacity of lubricants at constant rubbing speeds, and the maximum load which a lubricant will withstand before the film breaks down.

\$ \$ \$

An alkyd resin product known as glyptal, a product developed by a large electrical manufacturer, is showing several promising applications. Among the uses for these elxbiel resins are oil-proof gaskets; wire covering where oil resistance, dielectric strength and corona resistance are important; and vibration material for motor mountings.

\$ \$ \$

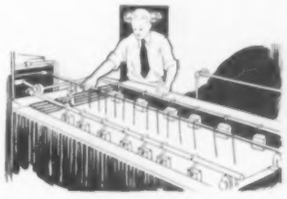
In the case of mechanical noise in a machine the vibrations are transmitted to the metal surface through the structure of the machine—the entire structure is vibrating. To damp out these forced vibrations the best procedure is to insulate the surface so that it will not receive the vibrations from the rest of the machine. If it is impossible to insulate, the next best thing is to laminate to obtain a damping effect.

\$ \$ \$

The penetrative power of gamma rays has been shown adequate for inspecting steel castings as thick as 10 inches and the sensitivity of the method reveals flaws as slight as 2 per cent of the total thickness of the object examined. Work performed by one investigator indicates that the method is also suitable for the inspection of welds, for few welds are made in members above 6 inches in thickness. Tests on good welds and bad welds revealed each without fail.

\$ \$ \$

Because sheet metal, ⅛-inch thick and less, has such a large surface area per unit of weight, heat stresses tend to produce warping or buckling of the sheet. This and the contraction effect on long seams are principal points to be considered in sheet metal welding by blowpipe. The effect of welding a long seam, over 10 or 12 inches, is to draw the seam together as the weld progresses. One way of overcoming this is to set up the pieces to be welded so the edges are nearly in contact at one end of the seam and separated at the other end at a distance that varies according to the metal and its thickness. For steel the average allowance per foot of seam should be ¼-⅜-inch; for brass and bronze, 3/16-inch; for monel metal, ⅜-inch; for aluminum, 1/5-inch; and for copper, 3/16-inch.



TO ELIMINATE grease, oils, and the like from the surface of steel to be chromium plated, it has been common practice to use an alkali cleaner of some sort—sometimes an electrolytic cleaner. If caution is not exercised, an alkaline film may remain on the work to cause subsequent poor adherence of the chromium. A method finding favor in a government arsenal is the use of a vapor degreaser and the entire omission of alkali cleaning. The vapor degreaser is a device for evaporating trichlorethylene and this vapor condenses on the work and dissolves all grease which drops to the bottom of the tank. The trichlorethylene is revaporated and used over. An advantage of the method lies in the fact that the work as it comes out of the degreaser requires no rinsing and is ready for immediate immersion in the chromium bath.

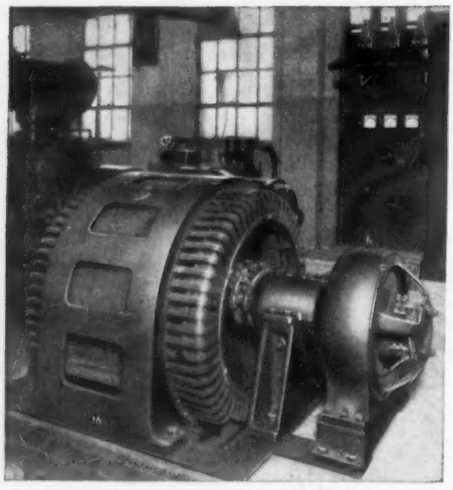
\$ \$ \$

Restriction of the carbon content and of the grain size of the 18 per cent chromium 8 per cent nickel steel produces the most satisfactory condition for ductility at elevated temperature and for maintenance of corrosion resistant properties at or after heating to a temperature sufficient for carbide precipitation.

MORE EVIDENCE that power-factor improvement pays big dividends

Gross Annual Saving in Cost of Power		$9564
Chargeable to New Equipment		
Energy Consumed by Condenser	$1572	
Maintenance, Interest, and Depreciation	$1910	$3482
Net Saving in Power Cost		$6082
Total Cost of Condenser Installation		$9552

And so, this industrial plant—the Stockham Pipe & Fittings Company, of Birmingham, Ala.—will realize the return of its investment in about 1½ years. The investment covers a General Electric 1250-kv-a. SYNCHRONOUS CONDENSER, which has raised the power-factor from 0.66 to 0.83.



1250-kv-a. G-E synchronous condenser installation at Stockham Pipe & Fittings Company, Birmingham, Ala.

General Electric power-factor corrective equipment—capacitors, synchronous condensers, synchronous motors—will effect economy and improve plant operation. Our engineers can assist you by making studies necessary for the most practical solution of your power-factor problem and in the selection of the equipment. To obtain their services, or an interesting publication on this subject, address our nearest sales office or General Electric Company, Schenectady, N. Y.

G-E synchronous condensers are quiet, smooth, and efficient in operation. They are particularly applicable to voltage regulation, as well as to power-factor improvement. The standard line includes sizes from 100 kv-a. to 50,000 kv-a. They can be manually or automatically controlled.

108-12

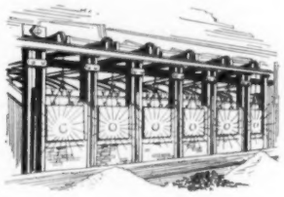
GENERAL ELECTRIC

PROGRESS IN STEELMAKING

HANDLING packs between double conveyor pack furnaces and sheet mill finishing stands now is accomplished by an alligator-type conveyor in which all the rolls automatically adjust themselves radially as the table is moved from one side to the other. By this arrangement the packs are guided accurately over any reasonable angle turn and are delivered in the proper alignment to the mill. Steel disks, 6 inches diameter, on which the hot packs ride, are welded to each roller at regular intervals to prevent conduction of heat to the ball bearings.

♦ ♦ ♦

Measuring the temperature of blooms as a check on the efficiency of heaters at the soaking pits is being accomplished by an ardometer at a 38-inch blooming mill in the Pittsburgh district. The device formerly was equipped with a photoelectric tube, amplifier unit and relays to complete the proper circuit but on account of difficulty traceable to capacity currents, the electron tube equipment was replaced by an air vane which controls a mercoid type switch.



MORE than 50 open-hearth furnaces in this country now are equipped with automatic combustion control. Operating results of some of the early installations indicate an increase in production of 5 to 10 per cent, a decrease in fuel consumption of 5 to 25 per cent, an increase in the life of the furnace up to 20 per cent, an increase in the furnace yield up to 2 per cent and a decrease in operating costs of 15 to 30 cents a ton.

♦ ♦ ♦

Slings of braided wire rope now are available for handling work in boiler shops and tube mills. Flatness of the rope provided increase contact with the material and at the same time facilitates removal from beneath loads being handled.

HOLDING the steel in the ladle 10 or 15 minutes after tapping, according to practice at an open-hearth shop in the Pittsburgh district, permits the inclusions fluxed by the final deoxidizer to rise to the top of the bath thereby increasing the ingot yield.

♦ ♦ ♦

Sponge iron now is being made experimentally from low-grade ores at the University of Detroit by a recently devised process which employs a new principle of reduction. Ore crushed to ¼-inch and smaller is charged into an oven and preheated by waste gases at 400 degrees Fahr. The charge moving downward enters the reduction zone where the temperature ranges from 1600 to 2000 degrees Fahr. and after reduction, the charge is cooled by the air for combustion coming in through heating flues. The iron, which leaves the furnace at about 250 degrees Fahr., is crushed, magnetically concentrated, mixed with gangue and then pressed into briquettes. When the latter are melted in a cupola or open-hearth furnace, the gangue floats off leaving the iron and carbon in combination. Tests disclose the reduction of the iron oxide is 100 per cent and the amount of carbon taken up can be regulated to 1.8 per cent. A well-known professor of metallurgy considers the process of direct assistance to blast furnacemen.

♦ ♦ ♦

New hot dip galvanizing equipment installed at a plant in eastern Pennsylvania for coating bolts, nuts, turnbuckles, etc., obviates the necessity of recutting threads after galvanizing.

♦ ♦ ♦

Hard surfacing the hammers on a gag press used for straightening structural steel sections leaving the last finishing pass has effected savings in production costs of one mill. Hammers formerly used would burn away 1/64-inch at each contact and had to be replaced every six days. Hard facing the hammers with pads of a wear-resisting alloy 3/16-inch thick and 1 inch wide, leaving a ¾-inch gap between pads, has effected 90-day runs, making a ratio of 15:1 over former practice.

TEMPERATURE control of heating furnaces in relation to the time element is accomplished by a new instrument which employs a printed aluminum cam cut from any desired temperature cycle. An arm attached to the control pointer follows the edge of the cam and maintains control at the desired setting. No paper chart is employed.

Scanning the Field of Technology

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Intricate Stampings Made Of Rustless Steel

By Walter C. Schmidt, in American Machinist, June 23, 1932, p. 777, 3 pp., 3 illusts.

Extensive use of high-strength heat treated alloy steels for strong parts of minimum size has increased the exactness required of heat treating methods. Accurate, uniform heat treatment calls for close control which in turn demands sensitive measuring equipment. In the construction of this accurate control equipment heat treatment plays a most important part. A leading instrument company, in its new recording potentiometer-pyrometers and other instruments, uses control cams, step levers and other parts fabricated of rustless steels of the 18-8 type. These parts were at first turned, milled or otherwise machined to maintain the necessary accuracy and were then a formidable element of cost. They are now being blanked and shaved to tolerances of plus or minus 0.001-inch on a production basis without hand finishing of any sort.

Blanking dies used are of vanadium steel, heat treated to a Rockwell hardness of C65. Shaving dies are of high-carbon high-chrome and semi-high-speed steel, heat treated to a hardness of C64-C65. Only one lubricant, pure animal lard oil, has been found successful for the blanking and shaving operations. Normally, as the blank is formed, it makes a report like a pistol shot, but if the wrong lubricant is used the report is magnified to a crash.

—STEEL, 7-11-32

Getting Best Results from Belted Motor Drives

By Robert W. Drake, in Machinery, July 1932, p. 851, 3 pp., no illusts.

A motor belt drive planned intelligently gives long and satisfactory service. It runs for a long time without any attention, except one belt-shortening when the belt is new, and sufficient care to keep the leather from drying out. A belt that will carry 10 horsepower is not necessarily suited to a 10-horsepower motor. The momentary overloads during starting and running determine the belt drive needed. Too often a belt drive is proportioned by considering average running conditions, but the belt must carry the peak loads as well as the running load. This accounts for a large proportion of belting troubles.

The faster a belt is run, up to 5000 feet per minute, the more horsepower it will carry, although above 4500 feet per minute the gain in horsepower is not large. The use of a wider belt is ordinarily the solution that is first thought of when a belt drive, operated at a reasonable tension, will not start the load or fails to carry the extreme load fluctuations. However, with motor belts, this is not usually the best solution of the problem.

The great majority of all troubles from motor drives result from using motor pulleys smaller than the standard, thereby shortening belt life. The product of pulley diameter and face width should be kept the same as for the standard motor pulley. If this cannot be done then a pivoted motor base or gravity idler is advisable.

—STEEL, 7-11-32

Forging Dies Formed From Master Types

By R. H. McCarroll, in Metal Progress, July 1932, p. 38, 2½ pp., 2 illusts.

Die typing, as practiced by the Ford Motor Co., consists of forcing a hardened master type into a block of steel. The process is carried out in much the same way as a signet ring is used to make an impression in wax. The master types are cut by a toolmaker of the regular die block steel used for hammers. To make small dies of this sort, pieces of the regular die block steel, cut to suitable size, are heated to 1700 degrees Fahr. in a lead pot and placed in a retaining ring. The master type has previously been mounted in the upper ram of a 90-ton press. The retaining ring holding the heated billet is pushed into place on the press bed directly under the type and the press is tripped. This impresses the correct shape in the top of the die block which is immediately covered with fine charcoal or cast iron chips to avoid oxidation. When it is cool it slips out of the retaining ring. Thus several dies can be made quickly in one setup. Some varieties would be restruck for close tolerance before mounting. In making the master type it is necessary to make a positive copy of the required shape, plus the amount of shrinkage that would be encountered when the die cools, plus the amount of shrinkage of the hot forging to be made in the die.

A master type is good for 200 to 400 forging dies. Where a great number of one kind of dies are consumed and the typing master must be replaced frequently, it has been found profitable to make a "master-master," or a master die which is used to type the master type. When this is done a set of master hammer dies is made which differ from the ultimate forging dies only in that they are three shrinks larger than the part to be produced.

—STEEL, 7-11-32

Roll Grinding Undergoes Progressive Development

By Carl Morey, in Iron Age, June 30, 1932, first of four installments, p. 1388, 2 pp., 5 illusts.

The first material offered as an improvement on chilled iron as a roll material was steel; its use, however, was more or less limited because a surface comparable with that of chilled iron was obtainable in only the small sizes by tempering. Following the steel roll the alloy irons were developed. While still limited somewhat as to size, the alloy iron rolls are the first to threaten the supremacy of chilled iron.

Prior to the introduction of alloy iron, in fact some 50 years ago, the grinding process was introduced as a finishing operation. This method, however, was not universally accepted until a later date. For a great many applications, chilled iron rolls were machined to approximate size and form, later to be finished by grinding. Since the alloy iron roll must be ground rough, machines for this purpose must be rugged. Therefore, a roll grinder of today must be a stock-removing as well as a finishing tool.

Aside from the fact that a highly polished roll surface produces better work, the life of the roll surface is materially prolonged. It follows, therefore, that the polished and buffed roll is to be expected in the very near future.

—STEEL, 7-11-32

4 Ton Ajax-Northrup Furnace

AJAX NORTHRUP

CORELESS INDUCTION FURNACES

UNIFORMITY

A purchaser of steel recently asked one of our customers whether he had made an extra large heat of open hearth steel. The purchaser thought so because his steel had been coming so uniformly true to analysis. The reply was that the steel was made in a large number of small heats in Ajax-Northrup coreless induction furnaces.

Uniformity hitherto unknown in the steel industry is being attained by the users of these furnaces.

INSIST ON INDUCTION FURNACE STEEL

Ajax Electrothermic Corporation
Trenton, New Jersey

G. H. CLAMER,
President and General Manager

E. F. NORTHRUP,
Vice President and Technical Adviser

FOREIGN REPRESENTATIVES

Electric Furnace Co., Ltd., London
Finspongs Metallverks Aktiebolag, Finspong, Sweden
Carlowitz & Co. Hankow, Shanghai, Canton
Mitsui & Co. New York, Tokyo
Hirsch, Kupfer und Messingwerke, A. G., Germany

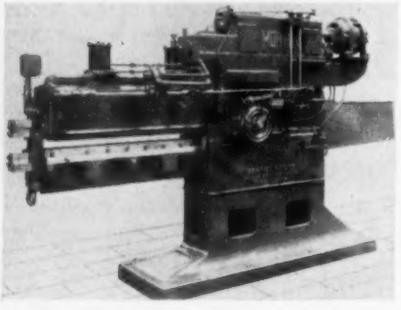
NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Trimming Machine Removes Flash from Welded Work

Morton Mfg. Co., Broadway and Hoyt, Muskegon Heights, Mich., has developed a heavy-duty draw-cut flash trimming machine for removing flash or upset from butt welded or flash welded tanks and sheets. The column of the unit, shown in the accompanying illustration, is of box type design and is heavily constructed. All running journals are fitted closely and bolted.

Two rams are provided for removing the flash from both sides of the work at the same time. The upper ram is carried in a guideway which is movable vertically and which also forms the base for securing the upper clamping jaw. Vertical movement is accomplished by means of air cylinders working over compounding leverages so that sufficient pressure is obtained for securely straightening and clamping the work. This automatically takes care of one of the essentials for close stripping by automatically compensating for



Heavy-duty flash trimming machine developed by Morton Mfg. Co.

any variation in the thickness of the stock.

Rams are reciprocated by means of reversing clutches so controlled that the machine makes one cycle and stops.

◆

Hydraulic Reciprocation Features Honing Unit

Barnes Drill Co., Rockford, Ill., recently announced the development of a hydraulically reciprocated honing machine which hones all diameters from 4 inches down to ¾ inch, the smallest size hone. The unit, shown in the accompanying illustra-

Hydraulically reciprocated honing unit designed by Barnes Drill Co.

tion, laps all diameters of bores smaller than ¾ inch. Maximum stroke is 8 inches and the minimum about ½ inch.

The six-splined spindle and its telescopic sleeve extension are made of chrome nickel steel, heat treated and hardened. The telescoping extension sleeve which has approximately 5 inches of travel, may be locked at upper position for holding the hone out of the work and locked at lower position to properly locate hone in the cylinder, holding it in the extended position during the working stroke.

◆

Electrode Holder Stand Controls Welder

Lincoln Electric Co., Cleveland, recently placed on the market a new electrode holder stand which automatically shuts down the welder one minute after the holder is placed on the stand and instantly starts the welder when the holder is removed. The automatic start-and-stop feature of the stand effects a decided savings in power consumption, it is claimed.

Operation of the stand is extremely simple. When the hook is depressed by the weight of the holder it actuates a special timing device which, at the end of one minute, disconnects the welder from the power supply line.

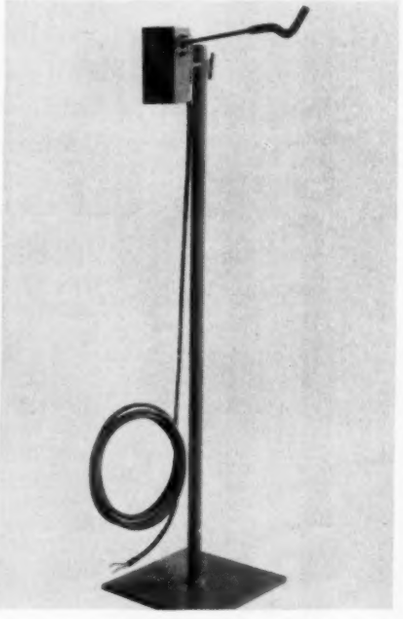
The stand, as shown in the accompanying illustration, is of arc welded steel construction throughout. Its broad, heavy base provides ample rigidity, yet does not impair its portability. The holder hook can be raised or lowered on the upright member to suit the convenience of the operator. The unit can be employed wherever the welding equipment is provided with an automatic motor starter having two-wire pilot control.

◆

Springs Counterbalance Crosshead of Shear

Niagara Machine & Tool Works, Buffalo, has introduced a new power squaring shear of structural steel and cast construction. This unit cuts ½-inch plates in 10-foot lengths and is available with 1-inch or 18-inch gap in housings. Holddown, crosshead and transverse bar are of steel, the crosshead which is welded consisting of a vertical and a horizontal member tied together with triangular web sections for strength and rigidity. It is counterbalanced with large springs enclosed in cylinders. This facilitates the functioning of the clutch and results in a more even application of power, reducing the strain on wearing parts.

The shear, shown in the accom-



Lincoln electrode holder stand automatically starts, stops welder

panying illustration, is equipped with an individual spring foot holddown which insures even pressure in spite of variation in the thickness of the metal being cut. It is possible to cut a ¼-inch sheet and a 1/16-inch sheet simultaneously at opposite ends of the unit. Heavy and light sheets can be cut, one immediately after the other, without making any adjustments. The holddown pressure is transmitted to the transverse bar, relieving the main shaft of this upward stress.

◆

Transmission Employs Disks Of Composition Material

General Radial Drill Co., 1765 Elmore street, Cincinnati, has brought out a multispeed transmission in which disks of composition material that run as idlers between driving and driven cones transmit the load. A small diameter groove on one cone aligns with a large diameter groove on the other, the idler disk wedging in the grooves with a wedging action which varies in direct proportion to the load carried. The tendency of the disk is to push the centers apart, but as the cones are mounted an absolute distance apart, this tendency serves

Niagara power squaring shears is characterized by rigidity and lightness

to increase the contact and provide a positive drive.

A simple movement of the knob shown on top of the unit in the accompanying illustration, gives a definite alignment for each of the speeds indicated on the plate. To change speed, the knob is lifted upward until a dowl pin is clear of the hole, thus lifting the idler disk out of contact. Then the knob is turned to the desired speed and the disk again brought into contact.

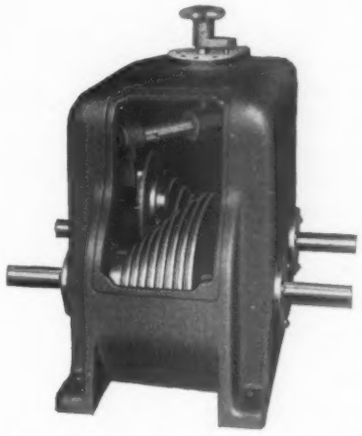
◆

Special Burring Machine Has Ingenious Clamp

City Machine & Tool Works, East Third street at June, Dayton, O., recently has completed a large special burring machine for one of the foremost automotive manufacturers. The unit removes the burr thrown up in hobbing the bevel gear on axle shafts.

Rugged in construction, the machine is the two-spindle type, each spindle being independent in operation of the other, allowing loading at one station while the other station is in operation.

The machine shown in the illustration at right, is equipped with four motors operating spindles, cam feed mechanism, and coolant and lubricating pumps, self-oiling system being standard equipment. One of



Multispeed transmission brought out by General Radial Drill Co.

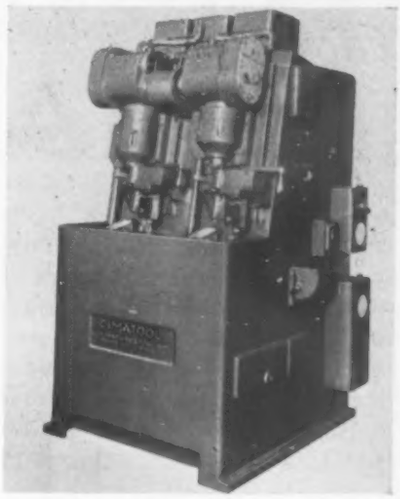
the minor features particularly worthy of mention is the hand clamping of the part, which due to an ingenious, mechanical arrangement provides for but a short travel of the clamping handle, and at the same time assures a positive nonslip action. Although quick and effective in operation, the clamp is simple in construction.

◆

Crane Scale Weighs While Load Is in Transit

Kron Co., Bridgeport, Conn., recently developed a crane scale for weighing loads while being lifted by or conveyed by cranes, hoists, jibs, tramrail systems or other overhead transportation systems. The unit which is placed in the lifting line and becomes part of the line itself, indicates the weight of the load on a large dial as soon as the load is lifted clear of its support, and continues to do so until it has been deposited at its destination.

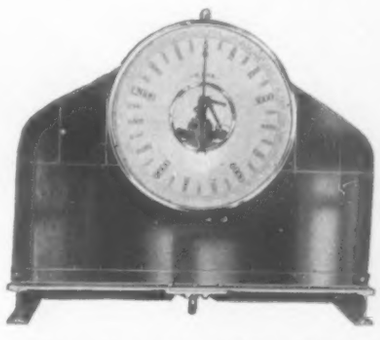
The new scale, shown in the accompanying illustration, finds wide



Special burring machine recently built by City Machine & Tool Works

use in steel plants, warehouses, on piers and in various types of industrial plants, storage yards, etc., where materials such as structural steel, rails and other rolled material, pig iron, scrap iron, coils of wire, forgings, castings, machinery, etc., are handled and weighed.

Frame of the scale which houses the simplified lever system with a minimum of bearing points, is of heavy steel plate construction with channel reinforcing. It is capable of supporting a load many times greater than the weighing capacity of the scale. Design of the dial mechanism provides one-point adjustment, simplifying and speeding adjustment when necessary, and permitting the tester to locate and seal every graduation point from zero to capacity. Lever and dial mechanism is designed to withstand the same shocks, jerks, continuous strains, sudden releases and hard usage given the chains, cables, ropes, etc., employed by the lifting system without effect on its accuracy or sensitivity. The scale is manufactured in two types.



Kron crane scale weighs while load is being lifted or conveyed

A practical solution in MAKING "PARTS"

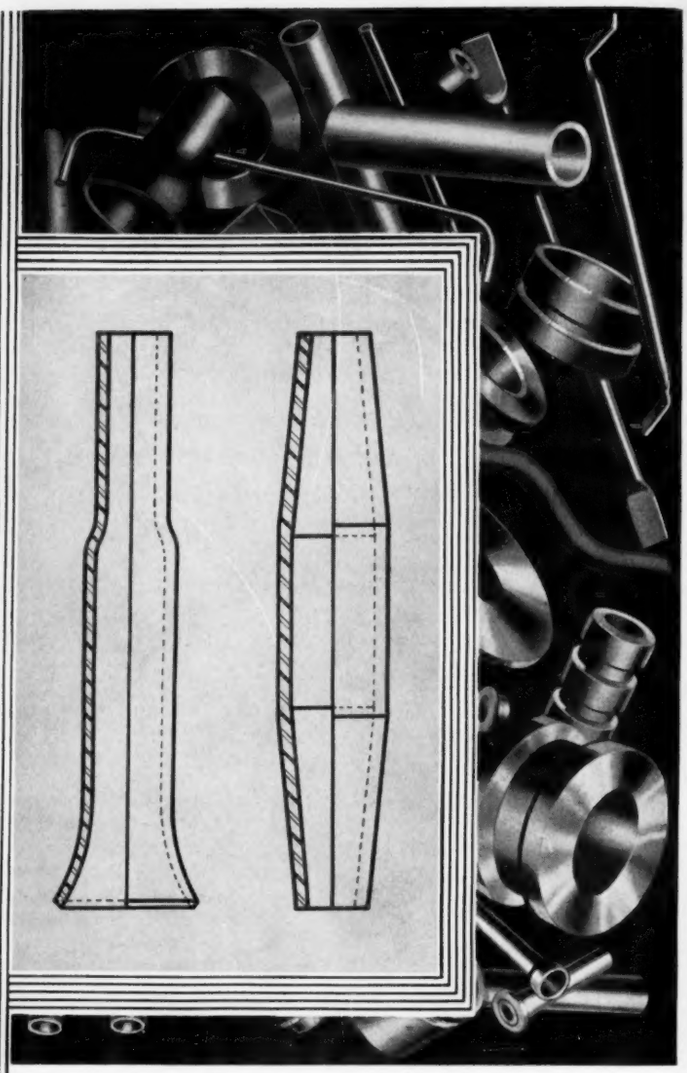
Lower production costs, due to simplified procedure, naturally follow the adoption of NATIONAL-SHELBY Seamless Tubing instead of solid stock or forgings, in the making of mechanical parts. As for uniformity of output, the efficient methods in manufacture and rigid inspection given this tubing will assure satisfaction to any inquirer on this point.

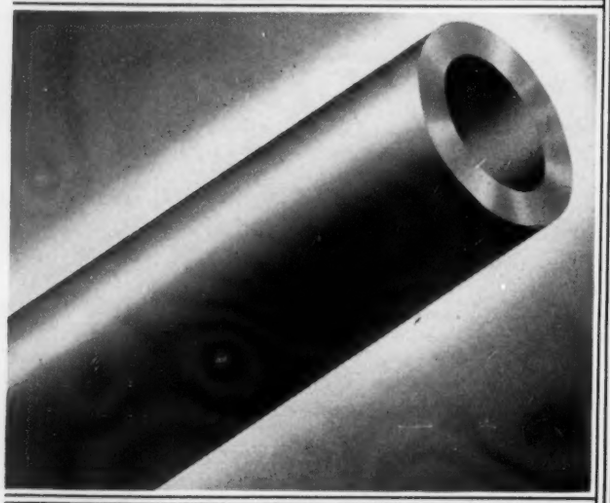
Is this more efficient method applicable to any of your requirements? Probably! For NATIONAL-SHELBY Tubing serves purposes as widely variant as those of a hypodermic needle on the one hand and a Diesel engine air flask on the other. In the automotive industry it has been largely and variously employed for years for such parts as axles, axle housings, drive shafts, drive shaft housings, tie rods, steering columns, steering rods, and numerous smaller parts such as piston pins, bushings, etc.

Shapes, sizes, wall-thicknesses, grades, and anneals are made for a great diversity of needs. Send for our booklet, "Seamless Tube Standards". It will give you complete information on NATIONAL-SHELBY—

America's Preferred Seamless Tubing

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
Subsidiary of United States Steel Corporation





NATIONAL
SHELBY
SEAMLESS TUBING

12% Steel Rate Emphasizes Maladjustment

Current Production on 1900 Basis—Ford Assemblies Over Crest—Pin Hopes on Government Loans—Hoover Dam Plate Award Near

SINCE it shut down for the July 4 holiday the steel industry has been prostrate at about 12 per cent, a rate of operation so low that instead of suppressing it as bad news producers submit it as evidence of the incredible deflation forced upon so basic an industry.

To producers, this apparent under-production is not tantamount to under-consumption. On the basis of 897,275 gross tons in June, steel ingot output is at the lowest rate since 1900, adequate only for a population 40 per cent below today and an age minus automobiles, radios, mechanical refrigerators, steel furniture and pipe lines.

With a daily ingot rate of 34,511 tons, representing 15.9 per cent of capacity, June definitely broke through the low of the 1921 depression. In the week ended July 9, due to unexpected slowness in resuming, mill operations averaged no higher than 12 per cent. A rise at Pittsburgh and Buffalo and a slight accumulation of orders in other districts may lift the rate a point this week.

The paralysis which has gripped other major outlets for steel—and structurals in lesser degree—is now laying a heavy hand upon the automobile industry. Ford after building up a domestic production from under 70,000 in May to 90,000 in June is falling back to 85,000 in July and possibly less than 60,000 in August. Chevrolet, Plymouth and DeSoto, other mainstays, also are slipping to a degree which Willys and Essex, now on new models, cannot neutralize.

Following an ebullient market in structural steel in the week ended July 2, awards last week subsided to 8174 tons. Public construction promises to lend noteworthy support again in a month, over 40,000 tons coming up shortly at New York and Philadelphia. Regardless of a split between the White House and congress, it is believed large appropriations for public work will survive.

These appropriations, expected through the Reconstruction Finance Corp., may reinforce some business now developing through previous loans. The Pennsylvania railroad, beneficiary of a loan, has released 20,000 tons of rails—with fastenings due shortly—against a commitment made in January, 1931, has released some structural material at Pittsburgh against old contracts, and is expected to free some tonnage in the East.

Despite threats of patent litigation, an award is expected daily of 52,000 to 60,000 tons of plates for Hoover dam, likely to be rolled at Chicago. On a smaller scale than normally but at some improvement over recent months, radio manufacturers are starting their fall production. Stove manufacturers at Philadelphia are specifying sheets more generously; strip demand is better at Chicago; jobbers at Pittsburgh are buying more nails for stock.

Pig iron sales are so light that carload transactions are setting the market. Foundry and malleable iron are off 50 cents at Chicago to $15.50, while in the Mahoning valley $14.50 now represents these grades. Scrap prices are almost entirely nominal, last sales patently not representing what buyers could do now. Some western railroads are endeavoring to trade scrap for finished steel.

How firmly producers of most finished steel products are holding prices still is a matter of comment. But especially in the East large consumers are resentful of the withdrawal of differentials and at Detroit two large automotive buyers are attempting to break down third quarter quotations.

Due to a decline in pig iron at Chicago, the iron and steel composite of STEEL is off 4 cents this week to $29.48. The scrap composite has surrendered 25 cents more, to $6.08, while the finished steel composite appears pegged at $41.71.

Composite Market Averages

	July 9	July 2	One Month Ago June, 1932	Three Month Ago April, 1932	One Year Ago July, 1931	Ten Years Ago July,1932
Iron and Steel Composite	$29.48	$29.52	$29.54	$29.75	$31.05	$37.50
Finished Steel Composite	47.71	47.71	47.64	47.62	48.68	53.74
Steelworks Scrap Composite	6.08	6.33	6.62	7.76	8.70	14.87

Iron and Steel Composite:—Pig iron billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	July 9, 1932	June 1932	April 1932	July 1931
PIG IRON				
Bessemer, del., Pittsburgh	$15.76	15.95	16.76	18.26
Basic, valley	14.00	14.50	15.00	17.00
Basic, eastern del., eastern Pa.	14.50	14.50	15.00	16.75
No. 2 foundry, del. Pittsburgh	15.76	16.01	16.26	18.26
No. 2 foundry, Chicago	15.50	16.00	16.00	17.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.00
**No. 2X, Eastern del. Phila.	14.76	14.76	15.66	17.51
Malleable, valley	14.50	14.50	15.50	17.00
Malleable, Chicago	15.50	16.00	16.00	17.50
Lake Superior, charcoal, del. Chi.	23.04	23.04	23.04	27.04
Gray forge, del. Pittsburgh	15.63	15.63	16.13	17.63
Ferromanganese, del. Pittsburgh	73.24	74.99	80.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsvile, furnace, ovens	2.00	2.00	2.25	2.40
Connellsville foundry, ovens	3.00	3.00	3.25	3.25
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	27.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	July 9, 1932	June 1932	April 1932	July 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.70	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
†Sheets, No. 24, hot, ann., Pitts.	2.20	2.20	2.20	2.40
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.85	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
†Sheets, No. 24, hot ann., Chi.	2.35	2.35	2.35	2.55
Sheets, No. 24 galvan., Chi.	3.00	3.00	3.00	3.00
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.85
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$8.25	9.00	10.20	10.50
Heavy melting steel, eastern Pa.	6.25	6.25	7.20	8.55
Heavy melting steel, Chicago	5.00	5.60	6.55	8.50
No. 1 wrought, eastern Pa.	6.25	6.25	9.50	9.75
No. 1 wrought, Chicago	4.25	4.75	5.85	8.25
Rails for rolling, Chicago	7.25	7.75	8.90	10.50

Sheets

Automotive Specifications Taper —Mill Operations Slower— Eastern Markets More Active

SHEET PRICES, PAGE 45

Youngstown, O. — Independent sheet mill activity in this district was much restricted last week, following the practical cessation of operations for July 4. New business is running a parallel course with mill operations. The third quarter has opened with little business on books. Wages of Amalgamated association workmen in sheet mills have just been decreased by the regular bimonthly settlement about 14 per cent, through the operation of the sliding scale which now has a new base of 2.50c, against the former base of 2.30c. Demand for autobody sheets continues to diminish. Some improvement in mill activity is expected late in July or early August.

Philadelphia — A feature in the sheet market here is better buying by stove manufacturers. More interest also is shown by radio manufacturers, but this has not been reflected in actual buying. Two of the leading radio manufacturers are starting off their new season with a production of about 15 per cent. A metalworker, with a die contract for a foreign automobile manufacturer, may do some stamping work for this interest, requiring 1000 to 5000 tons over an indefinite period. Sheet prices are steady. An eastern sheet mill has closed indefinitely.

Buffalo—District sheet mills continue to operate at 15 to 20 per cent, with the prospect they will remain near this rate for another week or two.

Pittsburgh—Routine buying on a restricted level still dominates the sheet market. There has been no improvement from the low levels of the past three weeks in shipments or new specifications. The effects of the July 4 holiday were felt all through last week, and little improvement is expected for the remainder of this month. Sheet mill operations are not much more than 15 per cent, production being confined to few plants. Prices are steady, wide hot-rolled sheets holding at 1.55c; and No. 24 gage at 2.20c. Galvanized apparently are maintained at 2.85c.

Cleveland—Demand for automotive sheets, outside of the three most active producers, is at the lowest point in many years; some Ohio mill interests say they do not recall a time when orders were so restricted. Shipments to the "big three" also have tapered recently. Orders from washing machine manufacturers in June were one-half, in tonnage, of those in May, and no improvement has been noted lately. Refrigerator and furniture requirements also are off, though not so sharply. Less-carload shipments form a larger proportion of the general movement of sheets. Prices are steady.

Cincinnati — Discounting holiday influence, business for sheet mills in the past week was close to the June rate. Bookings for third quarter are light.

Chicago—Sheet business lacks improvement in practically all directions, recent activity marking a new low level for the year. Buyers are placing only small lots for immediate needs and plant shutdowns are retarding buying in some instances. Prices are unchanged.

Birmingham, Ala.—Labor at sheet mill of the Tennessee Coal, Iron & Railroad Co. is being employed 36 hours a week. The Gulf States Steel Co. will resume the operation of its sheet mill this week.

Safety Record Is Claimed

Birmingham, Ala. — The North Birmingham plant of the Sloss-Sheffield Steel & Iron Co. celebrated with a barbecue June 24 a safety record which it believes has been equalled only once. This record is two years or a total of 1,080,000 man-hours without an injury.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, del.	1.70c
New York, del.	1.90c
Birmingham, base	1.70c
Philadelphia, del.	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, del.	2.01c
New York, del.	2.05c
St. Louis, delivered	2.07½c
Birmingham	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.20c
Gary, Ind. Harbor, base	2.30c
Chicago, del.	2.35c
New York, del.	2.55c
Philadelphia, del.	2.51c
Birmingham, base	2.35c
St. Louis, del.	2.57½c
San Francisco, c.i.f.	2.85c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, del.	3.00c
Philadelphia, del.	3.16c
Birmingham, base	3.00c
St. Louis, del.	3.22½c
San Francisco, c.i.f	3.50c

AUTOMOBILE NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pitts., No. 10 heavy	2.55c
Pitts., No. 20 light	3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.40c to 2.50c
Gary, base	2.50c to 2.60c
St. Louis, del.	2.77½c to 2.82½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.25c
Gary, Ind. Harbor, base	2.35c
Chicago, del.	2.40c
Philadelphia, del.	2.56c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.75c
Gary, Ind. Harbor, base	2.85c
Chicago, del.	2.90c
Philadelphia, del.	3.06c
New York, del.	3.10c
St. Louis, del.	3.12½c

TIN AND TERNE PLATE
Per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75
Long ternes, 24, unassort.	3.00c

Gary, Ind., base 10 cents higher

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)
F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95
(Per pound)	
Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00
(To Manufacturing Trade)	
Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Buffalo, del.	1.85½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.75c
New York, del.	1.87c
Boston, del.	2.00½c
Chicago, base	1.70c
Cleveland, del.	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, del.	1.91c
New York, del.	1.90c
Boston, del.	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.30c

IRON

Chicago, base	1.65c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chi., billet	1.60c to 1.70c
Chi., rail steel	1.45c
Chi., rail steel, road, bridge and culvert	1.45c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Min. 10,000 lbs. of kind and grade

Pittsburgh	1.70c
Chicago, Buff., Cleveland	1.75c
Detroit	1.90c
Eastern Michigan	1.95c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel
Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills
Alloy Quality Bars, 2.65c, mill
(Differentials to various classes of consumers)

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo.	
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr.	
2500	2.25	spring	0.20
3100	0.55	6100 bars	1.20
3200	1.35	6100 Spring	0.95
3300	3.80	Cr., Ni., Van.	1.50
3400	3.20	Carbon Van.	0.95
4100 .15 to .25 Mo.	0.50	9250 (flats)	0.25
		9250 (rds.,sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide, Pitts.	1.45c to 1.50c
Do, Chicago	1.55c to 1.60c
Do., del. Philadelphia	1.76c to 1.81c
Do., del. NewYork	1.80c to 1.85c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleve.	70, 10 and 5 off

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$32.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
*Spikes, boat, barge, Pitts.	2.75c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Tie plates, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread	75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.	
Eagle list	75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts	75 off
Tire bolts	60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.	
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.	

NUTS

Semifinished	75 off

HEXAGON CAP SCREWS

Milled	80-25 off
Upset 1 in. diam. and smaller	80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller	75-10-10 off
Headless set screws	75-10 off
Upset, larger than 1 in	75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do, less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Eastern Consumers Resent Loss Of Preferential Price—Demand Shows No Improvement

BAR PRICES, PAGE 45

Chicago—Soft steel bar specifications are fairly steady and the market is holding well at 1.70c, Chicago. Orders involve only small lots and automotive buying is spotty, with requirements of some interests still declining. Rail steel bars are unchanged at 1.50c. Contracting has been slightly more active recently, although buyers generally are showing little interest in forward needs.

Philadelphia—The policy of refusing concessions to preferential buyers of steel bars is not being received graciously by many consumers affected. Indications that this policy would soon be inaugurated did not cause these interests to cover before the beginning of this quarter and so far this month most have maintained an attitude of aloofness, awaiting developments. Until their requirements become urgent, there is not likely to be much test of the new policy. The market is firm at 1.60c, Pittsburgh.

Pittsburgh—General manufacturing outlets for carbon steel bars have not improved and the automotive trade is taking even less than a month ago. The latter trend likewise characterizes the movement in alloy bars. A local mill has grouped a rolling of bars and strip which was sufficient to start one of its works late last week. The price of 1.60c for carbon steel bars shows no deviation. The base price of 2.65c for alloy steel bars is continuing regularly on small sized tonnages. There is no change in the situation whereby automobile concerns and larger volume buyers obtain a base of 2.45c.

Youngstown, O.—Steel bar demand is much below normal, due to lack of demand for state highway work, usually heavy at this time of year, and for concrete building construction.

Cleveland—Automotive orders for bars show a further shrinkage, and the volume of miscellaneous business also is smaller than in June. Interest at present centers in the new price setup on forging bars. Ordinary soft steel bars are 1.65c, base, Cleveland. In applying the differential of $3 per ton for commercial forging bars, and of $5 a ton on guaranteed extra quality forging bars, to the regular trade, some makers based these differentials on 1.55c, Cleveland, making commercial forging bars 1.70c, and guaranteed quality bars, 1.80c. These figures are more representative of the market here, although some mills are seeking to apply the differentials on a 1.65c, base, Cleveland, price, quoting 1.80c for commercial forging bars, and 1.90c for guaranteed quality bars. These prices may become more general for new accounts.

San Francisco—Carnegie Steel Co. has been awarded 90,000 pounds of rivet steel for Mare Island navy yard at 2.25c delivered, included in schedule closing May 17.

Cold-Finished in Less Demand; Auto Needs Low

Cold Finished Prices, Page 45

Pittsburgh—Specifying for cold-finished steel bars fell off last week, due to the holiday's influence and the fact that many customers had ordered for July shipment before June 30. Specifications appear to be headed for a low volume in July. Releases from the Detroit district for automotive work show an easier trend. The base price of 1.70c, Pittsburgh, on 10,000-pound lots for shipment at the same time to the same destination is quoted at present.

Tin Plate Operations Are Reduced Temporarily

Tin Plate Prices, Page 45

Pittsburgh—Tin plate operations last week receded about five points to approximately 50 per cent, due to shutdowns from July 2 through July 5. Consequently, operations last week were confined to four or, at the most, five days. An unverified report credits the recent order for the Gold Dust Corp. for 25,000 base boxes to have been placed with a tin mill in a nearby district. No official change is noted in the price, $4.75 per base box.

Plates

Oil Tank Prospects More Favorable—Many Mills Now Quoting Single Price to All Buyers

PLATE PRICES, PAGE 45

Chicago—Plate demand still lacks the support of active operations among freight car and tank builders. Prospects for increased oil tank construction are regarded more favorably. Repair work at car shops is quiet and plate specifications are correspondingly slow. Plates generally are 1.70c, Chicago.

Boston—Plate demand is spotty and light. Interest is largely centered in some releases for the Maine shipbuilding yard and an expected pipe line in the Boston district. Prices are steady at 1.70c, Coatesville, Pa.

Philadelphia — The majority of plate sellers are adhering to the one-price policy of quoting all customers, regardless of the size of tonnages normally consumed. The price is 1.70c, Coatesville, Pa. To date there has been little test.

Pittsburgh—Plate business continues to be made up in large part by miscellaneous orders, and tonnages of size and quantity are rare. Railroads are issuing few releases. Western Maryland railroad has postponed its plant to convert 150 steel gondolas. River barge work is inactive and tankmakers are finding difficulty in closing on attractive business. The base price of 1.60c appears to be the going market.

New York—An immediate decision by the government reclamation department is expected to result from hearings last week on the protest against the award of the fabricating contract for the Hoover dam tunnel, requiring 52,000 to 60,000 tons, of plates, to the low bidder. The hearing was given to one of the bidders, because of threats of patent litigation. Apart from this project, little is pending in the plate market, and prices are unchanged.

Cleveland—Sinclair Refining Co., Kansas City, Mo., has contracted with Lackawanna Steel Construction Corp., Buffalo, for eight heaters for erection in Kansas, requiring 359 tons of plates. Current demand here is comprised of small, miscellaneous lots, with the price firm at 1.60c, base, Pittsburgh.

Contracts Placed

359 tons, eight heaters, Sinclair Refin-

ing Co., Kansas City, to Lackawanna Steel Construction Corp., Buffalo.

Contracts Pending

Unstated tonnage, 530,000 gallon standpipe, Barksdale Field, Shreveport, La.; Pittsburgh-Des Moines Steel Co., low $21,850, bids June 30.

Bolt, Nut Users Specify Slowly; Prices Are Firm

Bolts, Nuts, Rivets Prices, Page 45

Pittsburgh—Lessened activity of jobbers and railroads in specifying bolts and nuts has affected bookings adversely. Automobile interests and structural shops also specify sparingly. Third quarter contracting is completed with no change in prices for bolts and nuts at 75 off list nor for large rivets at 2.25c, base.

New York—Republic Steel Corp. is low on 5700 pounds of ⅜-inch, pan head, straight neck, 18-8 corrosion-resisting steel rivets for delivery to New York, f.a.s. vessel, for trans-shipment to Pearl Harbor, T. H. with $2135 delivered. For the same material, but for delivery f.a.s. vessel, San Francisco, John Hassall Inc., Brooklyn, N. Y., is low with $2465.25.

Philadelphia—Revival of the pier project of the National Railroad & Terminal Co., Camden, N. J., now discussed as a possibility, may result in early purchase of 75 to 100 tons of rods. Cramp & Co., Philadelphia, are general contractors. Bolts and nuts are steady at 75 off, and rivets at 2.25c, Pittsburgh.

After considerable delay in closing, the navy has awarded 8400 pounds of corrosion-resisting steel bars for Philadelphia to Associated Alloy Steel Co., Cleveland, at 32.875c, delivered.

Cleveland—A few more railroad specifications and fairly steady demand from the three leading automotive interests are features of the nut and bolt market. The volume of business so far this month is slightly better than the average for June, and improved specifications late in June carried that month up to about a parity with May. Prices are firm.

Chicago—Activity in bolts, nuts and rivets has been slow to recover from the dullness over the end of June and the holiday period. Specifications also reflect shutdowns scheduled for a number of manufacturing plants for a short time this month. Contracts have been signed in fair number, prices continuing 75 off for bolts and nuts and 2.35c, Chicago, for large rivets.

Railroads

Pennsylvania Release of 20,000 Tons of Rails Goes to Four Mills —Fastenings Award Soon

TRACK MATERIAL PRICES, PAGE 45

Pittsburgh—Considerable interest is centering on the anticipated release of fastenings to accompany the order last week by the Pennsylvania railroad releasing 20,000 tons of standard open-hearth rails. The local rail mill received approximately one-third of the business, which was made up of 4500 tons of 131-pound sections and 2500 tons of 152-pound rails. This business is for August shipment and will necessitate starting of the Edgar Thomson works some time after Aug. 1. Other activity in purchasing of finished steel products by railroads is made up of small lots. These are made up largely of rush track fastening requirements. The New York Central railroad has made no decision on its long pending rail inquiry but there is expectation some word will be forthcoming before long. Prices of $37 a ton for tie plates and 2.60c for spikes are without change, but untested.

New York—A reliable but unconfirmed report is that Phoenix Iron Co., Philadelphia, will roll 3500 tons of 150-pound contact rail of the 3900-ton contract recently awarded Sweet's Steel Co., Williamsport, Pa., and the Seaport Contracting & Supply Co., New York, as coprincipals by the local board of transportation. The semifinished steel will be supplied by the American Rolling Mill Co., Middletown, O., according to report. Car demand is negligible. One eastern railroad is reported considering the purchase of ten locomotives. Much, it is believed, will depend on the policy of the Reconstruction Finance Corp.

Philadelphia—Pennsylvania railroad has released 20,000 tons of rails, four producers participating Carnegie Steel Co., Bethlehem Steel Co., Inland Steel Co. and Illinois Steel Co. This release is against orders placed in January, 1931, when 200,000 tons were let. How much, if any, remains to be released against these old orders has not been announced.

Chicago—Local rail mills have benefited moderately as a result of the release of a fairly substantial tonnage of rails by the Pennsylvania railroad, as reported a week ago, but little change is noted elsewhere in railroad purchases. Releases of fastenings are slightly less active and no new buying or inquiry has appeared in the rail or freight car market. Steel purchases for repair work remain light.

Rail Orders Placed

Pennsylvania, 20,000 tons rails to Carnegie, Illinois, Bethlehem and Inland Steel companies; release against contracts placed January, 1931, when 200,000 tons were awarded.

Wire Demand Droops; Prices Show No Change

Wire Prices, Page 45

Chicago—Seasonal factors continue to restrict demand for wire products, and specifications are moderating slowly. Favorable conditions in some agricultural districts offer encouragement but in the meantime buying is confined largely to necessities. Contracting has been fairly active and prices are well maintained at $2 in carloads for wire nails, 2.25c for plain wire and $38 for wire rods. John A. Roebling's Sons Co will furnish 1000 tons of steel cable for the Chicago exposition cable ride.

Worcester, Mass.—Wire demand has tapered, producing uneven and slightly lower mill operations. Prices are firm, with manufacturers' bright wire 2.30c, Worcester.

New York—John A. Roebling's Sons Co., Trenton, N. J., has been awarded 70,000 feet of 3/16-inch plow steel wire rope at ½c delivered, Yorktown, Va., mine depot.

Philadelphia — Prices are firm, with better demand from jobbers.

Pittsburgh—Jobbers appear more inclined to stock nails but this upward movement has not offset the dull condition in material moving to the manufacturing trade. With such a condition, prices are firm at 2.20c for plain wire and a $1.95 minimum for carload lots of nails.

New Orleans—C. T. Patterson Co. Inc., New Orleans, is low on 1,285,000 feet of 7/16-inch, seven-wire strand for the United States engineer here, bidding 0.80c, f.o.b. mill, Waukegan, Ill., or 0.96499c, delivered New Orleans.

John A. Roebling's Sons Co. is low on 425,000 feet of ½-inch diameter, 19-wire strand at 1.91c, f.o.b. Trenton, N. J., or 2.13302c, delivered New Orleans. Material is for flood control work, but contracts are being held in abeyance pending appropriation by congress.

Structural Shapes

New Inquiry for Federal Buildings Slower in Developing—Awards, 8174 Tons, Smallest Since Third Week In May—2000 Tons Placed For Chicago Exposition

STRUCTURAL SHAPE PRICES, PAGE 45

New York—Decline in fresh inquiry for federal work indicates a reduction in awards during the ensuing few weeks. Next large jobs likely to become active are the superstructures for the federal courthouse and postoffice annex here, taking about 28,000 tons. These may not be up for bids before September. Meanwhile, the number of pending small postoffice jobs in the East holds up well. Bids are in on contracts for Rochester, N. Y., and Bridgeport, Conn., federal buildings. It is possible that at least two more foreign national buildings will be included in the Rockefeller center project, for which close to 70,000 tons of fabricated material has been shipped. Bids close July 13 on structural steel inspection service for about 26,000 tons, for the postoffice and the extensible building at Washington.

Boston—Structural inquiry is slightly heavier. The largest pending projects are postoffices at Lynn, Mass., and Bridgeport, Conn. Active Maine and Massachusetts bridges require close to 450 tons. Plain material is firm at 1.70c, eastern mill.

Philadelphia—Possibility of an early release of some fair tonnage for the Pennsylvania railroad, on old contracts and the likelihood of specifications being brought out a little later for the proposed Thirtieth street postoffice, requiring 14,000 to 17,000 tons, is stimulating sentiment in the local structural market. Shapes are 1.70c, nearest mill.

Buffalo—The Buffalo Sisters hospital project, on which tentative bids were taken, has been deferred indefinitely because of financing difficulties, it is understood. The plans called for more than 2200 tons of structural steel.

Pittsburgh—Structural fabricators foresee a fresh wave of appropriations in the offing for government work, which according to report will run into large figures. This construction will be largely for internal waterways and highways and not so much devoted to public buildings. It is possible that a large outlet for sheet steel piling may be developed. An increasing number of highway bridges in this and surrounding states is leading new inquiry. Release has been made on some structural material for the Pennsylvania railroad at Newark, N. J., in its electrification program. The price of 1.60c, Pittsburgh, for plain material is strong.

Cleveland—Lowensohn Construction Co., Cleveland, is expected this week to place 295 tons of shapes for the outflow channels of the Cleveland easterly sewage disposal plant, having been awarded the general contract. Bids are to go in this month on postoffices at Barberton, Fostoria and Painesville, O., collectively taking about 100 tons. Many small miscellaneous jobs are being figured. Plain shapes are firm at 1.60c, base, Pittsburgh.

Chicago—The largest local award in the week requires 2000 tons for cable car towers for the Century of Progress exposition. Pending work includes 1000 tons for a government appraiser's store here. Activity elsewhere is made up almost entirely of state and federal construction, a number of small bridges having been closed recently. Dullness in construction in Chicago is a reflection of the record of building permits, the first six months of this year showing permits for a total cost of only $2,000,000, a decrease of 95 per cent since a year ago. June was the poorest month of the past 40 years for which records are available.

Contracts Placed

2000 tons, cable car towers, Century of Progress exposition, Chicago, to Mississippi Valley Structural Steel Co., Decatur, Ill.

1200 tons, postoffice, Chattanooga, Tenn., to Virginia Bridge & Iron Works, Roanoke, Va.

1100 tons, postoffice, Knoxville, Tenn., to Ingalls Iron Works, Birmingham, Ala.

475 tons, two bridges, Beckham county, Oklahoma, to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa.

450 tons, scattered highway bridges, New York; 400 tons to McClintic-Marshall Corp., Bethlehem, Pa.; remainder to unstated.

370 tons, highway bridge, Millsboro, Pa., to Fort Pitt Bridge Works, Pittsburgh.

300 tons, bridge, Belle Plaine, Kans., to Ben Sibbitt Iron & Foundry Co., Wichita, Kans.

300 tons, highway bridge, New Windsor, N. Y., to American Bridge Co., Pittsburgh.

250 tons, farm buildings, John D. Rockefeller estate, Tarrytown, N. Y., to Belmont Iron Works, Philadelphia.

250 tons, government hospital, Wichita, Kans., to Birmingham Ornamental Iron Works, Birmingham, Ala.

200 tons, bridge, Niangua river, Missouri, to Clinton Bridge Works, Clinton, Iowa.

192 tons, state highway bridge, Sanford, Mich., to R. C. Mahon Co., Detroit.

185 tons, postoffice, Norristown, Pa., awarded through Alfred Herzog, Philadelphia, to the Lehigh Structural Steel Co., Allentown, Pa.

175 tons, state building, Smyrna, Del., awarded through William Steel & Sons, Philadelphia, to Montgomery Iron & Steel Co., Philadelphia.

160 tons, veterans' hospital, Des Moines, Iowa, to Pittsburgh-Des Moines Steel Co., Des Moines.

160 tons, postoffice, Kenosha, Wis., to Lakeside Bridge & Steel Co., Milwaukee.

107 tons, miscellaneous state bridges, Iowa, to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa.

100 tons, highway bridge, Iowa, to Clinton Bridge Works, Clinton, Iowa.

100 tons, postoffice, Merced, Calif., to unnamed interest.

100 tons, bridge, Dean road, Brookline, Mass., to McClintic-Marshall Corp., Bethlehem, Pa.

Unstated tonnage, garage and office, Standard Oil Co., Quincy, Mass., to Boston Bridge Works, Boston.

Awards Compared

	Tons
Awards, week ended July 9	8,174
Awards, week ended July 2	29,533
Awards, week ended June 25	10,262
Awards, this week in 1931	32,108
Av. weekly awards, 1931	34,236
Av. weekly awards, 1932	15,717
Av. weekly awards, June	20,034
Awards, to date, 1931	1,063,754
Awards to date, 1932	440,079

Contracts Pending

4000 tons, postoffice, Minneapolis; general contract awarded to N. P. Severin Co., Chicago.

2200 tons, armory, Buffalo; J. W. Cowper Co., Buffalo, contractor.

1800 tons, state bridge, Shark river, New Jersey; bids open at Trenton, N. J., July 18.

1500 tons, postoffice, Rochester, N. H.; bids in.

1300 tons, postoffice, Rochester, N. Y.

1000 tons, government appraiser's store, Chicago.

800 tons, Bell telephone exchange, Eighty-ninth and Ray streets, Philadelphia; bids asked.

750 tons, shapes and plates, gates, valves and pipe, Pine Canyon dam, Pasadena, Calif.; bids Aug. 1.

700 tons, plant, Freihofer Baking Co., Allentown, Pa.; early award expected.

700 tons, state bridges, New York.

650 tons, postoffice and court house, Lexington, Ky.; bids Aug. 4.

560 tons, various highway bridges, Pennsylvania.

500 tons, bridge, Westmoreland county, Pennsylvania; Industrial Construc-

tion Co., Cleveland, low for general contract.

500 tons, postoffice, Durham, N. C.; bids Aug. 9.

440 tons, various highway bridges, New York.

375 tons, state bridges, Wellesley and Newton, Mass.; bids July 12.

350 tons, postoffice, Monroe, La.; bids Aug. 10.

350 tons, state bridge, Lone Rock, Wis., bids July 12.

300 tons, postoffices at Fostoria, Barberton and Painesville, O.; bids this month.

300 tons, theater, Washington.

290 tons, trash racks, gates and valves, San Gabriel dam No. 1, Los Angeles; bids Aug. 1.

250 tons, Pennsylvania state award, July 22.

250 tons, school, Wilmington, Del.

240 tons, highway bridge, Painted Post, N. Y.

223 tons, bridge over Paradise Cut, San Joaquin county, Calif.; bids July 20.

200 tons, building, Standard Brands Inc., Peekskill, N. Y.

200 tons, state highway bridges in Trempealeau county, Wisconsin, bids July 14.

200 tons, stores and hotel, Bellows Falls, Vt.

200 tons, building, Atlantic City Gas Co., Atlantic City, N. J.

200 tons, mainly piling, Colusa weir, Sacramento river, Sacramento, Calif., district engineer, closing date not fixed.

128 tons, state bridges, Beaver county, Oklahoma; bids July 12.

103 tons, steel stringer spans, bridge, over Sugar creek, near Beach City, O.; Ohio state highway project No. 356, bids July 15. Included, 28 tons of reinforcing steel.

100 tons, postoffice, Las Vegas, Nev.; bids opened.

100 tons, bridge, Boston & Maine railroad, Saco, Me.

Unstated tonnage, head gate alterations and appurtenant work, first district Chicago, United States engineer, Mississippi Valley Structural Steel Co., St. Louis, low, $19,976.24.

Financial News of Steel Industry

WESTINGHOUSE ELECTRIC & MFG. CO., East Pittsburgh, Pa., has omitted the quarterly dividend on the common stock—25 cents was paid three months ago—but has declared the regular preferred dividend of 87½ cents payable July 30 to record of July 11.

□ □ □

Laclede Steel Co., St. Louis, has declared a quarterly dividend of 15 cents a share, payable June 30 to record of June 24, against 25 cents in the preceding quarter.

Railroad earnings in April were 1.17 per cent, against 2.25 per cent in April, 1931.

Concrete Bars

Small Orders Fairly Well Sustained—1400 Tons Placed for Long Island Railroad Grade Eliminations—Bids Being Taken on 3837 Tons for California Dam

REINFORCING BAR PRICES, 45

New York—Fourteen hundred tons of concrete bars were placed late last week for the Long Island railroad's grade elimination work at Valley Stream, N. Y. A substantial tonnage is to be placed soon for the New York federal courthouse foundations. Buyers in general are slow to close. Fresh inquiry is light, but a fair tonnage still pends, a good part of such volume in New Jersey. Public works, mainly bridges and highways, account for most activity. Prices are unchanged, and untested on large lots.

Philadelphia—A few scattered awards for concrete bars are noted, including 105 tons for a school at Wilmington, Del. Cut lengths continue fairly steady at 1.75c, Pittsburgh, in carlots. An $800,000 postoffice at Allentown, Pa., on which bids will be opened Aug. 2, will require a fair tonnage of bars.

Boston—Reinforcing bar demand is light, awards being mainly in small lots. Bridge and highway requirements are fair, but below normal for this period. Prices are irregular. Building demand is dull.

Cleveland—Interest here in the concrete bar market is centered in the plans to be issued this month for the westerly approach to the Main street bridge, requiring a substantial tonnage. For the concrete portion of the bridge it is unofficially estimated 2000 to 3000 tons will be required. Other jobs are small, but fairly numerous. State highway awards July 15 will require an aggregate of approximately 600 tons.

Pittsburgh—Reinforcing steel bars are moving slowly so far as awards of consequence are concerned, but there is promise of considerable tonnage to be closed either this week or next. About 1300 tons of reinforcing steel is the aggregate for small jobs in the Pennsylvania state highway letting of July 8. Repairs to the local Tenth street bridge will take some reinforcing steel, and the general contractor of the Rochester, Pa., bridge is expected to buy bars for the project soon. Mill lengths continue at 1.60c.

Chicago—A small tonnage of bars for Indiana road work is to be closed shortly while a number of postoffices and other public projects are pending. Private work is almost entirely lacking. Prices are relatively firm at 1.60c for billet bars and 1.45c for rail steel.

Awards Compared

	Tons
Awards, week ended July 9	3,593
Awards, week ended July 2	843
Awards, week ended June 25	5,601
Awards, this week, 1931	5,135
Av. weekly awards, 1931	6,808
Av. weekly awards, 1932	4,246
Av. weekly awards, June	4,691
Awards, to date, 1931	197,031
Awards to date, 1932	118,890

Contracts Placed

1400 tons, Long Island railroad grade elimination work, Valley Stream, N. Y.; 700 tons, to National Bridge Works, Long Island City, N. Y.; 350 tons to Igoe Bros., Newark, N. J.; and 350 to Concrete Steel Co., New York, through Foley Bros., New York.

700 tons, veterans' hospital, Des Moines, Iowa, to Concrete Engineering Co., Chicago, through H. G. Christman Co., South Bend, Ind.

400 tons, connecting wing, department of labor and interstate commerce commission building, Washington, to Rosslyn Steel & Cement Co., Rosslyn, Va.; James Stewart & Co, Inc., New York, general contractor.

250 tons, connecting tunnels, Howard university, Washington, to Kalman Steel Corp., Bethlehem, Pa.

200 tons, two eastern Washington state highway projects, to Northwest Steel Rolling Mills, Seattle.

120 tons, dock, Fort Mason, San Francisco, to Gunn, Carle & Co., San Francisco.

113 tons, bridge near San Simeon, Monterey county, Calif., to unnamed interest.

110 tons, North Fulton high school, Atlanta, Ga., to Kalman Steel Corp., Bethlehem, Pa.; 48 tons shapes to Ingalls Iron Works, Birmingham, Ala.; Southern Ferro Concrete Co., Atlanta, general contractor.

100 tons, highway work in Washington county, Utah, to unnamed interest.

100 tons, hospital addition, King county, Hanford, Calif., to Kyle & Co., Fresno, Calif.

100 tons, approximately, Wood county, Ohio, bridges and highway, to Truscon Steel Co., Youngstown, O., through

G. L. LaGoiteaux, Toledo, O., general contractor.

Contracts Pending

3837 tons, San Gabriel, dam, Los Angeles county, Calif.; bids Aug. 1.

925 tons, Thirty-fifth street viaduct, Milwaukee, bids in; William M. Christensen Construction Co., Racine, Wis., general contractor on substructure.

300 tons, five buildings, naval air station, Sunnyvale, Calif.; A. Nelson, San Francisco, low, $233,000.

300 tons, armory, Buffalo; J. W. Cowper Co., Buffalo, contractor.

225 tons, veterans' hospital, Batavia, N. Y.; bids soon.

130 tons, structures, Hamilton county, O., Ohio state highway project No. 360; bids July 15.

100 tons, approximately, 21-foot box culvert bridge over Lick creek, Coal Grove, O., Ohio state highway project No. 343; bids July 15.

Tin Plate Output in June Holds to Level of May

New York—Production of tin plate in the United States held to 93,000 tons in June, unchanged from the preceding month but comparing with 135,000 tons in June, 1931, according to statistics issued July 7 by the American Bureau of Metal Statistics.

Consumption of tin in tin plate last month aggregated 1500 tons, also unchanged from the preceding month and comparing with 2200 tons in the corresponding month last year. June deliveries of foreign tin in the United States amounted to 3540 tons, against 3135 tons in May and 5185 tons a year ago.

April production of tin plate in Great Britain amounted to 67,700 tons, compared with 80,700 tons in March and 56,400 tons in April, 1931. May production in Germany totaled 11,384 tons, against 12,165 tons in the preceding month and 10,770 tons in May, 1931.

Exports of tin plate from the United States sagged to 2212 tons in May from 4460 tons in the preceding month and 6129 tons in May, 1931. May imports amounted to 392 tons compared with 4151 tons in April.

Great Britain exported 37,244 tons in May compared with 45,468 tons in April and 34,846 tons a year ago. German exports in May increased to 6329 tons from 3113 tons in the preceding month and 6184 tons in May of last year.

Consumption of tin in babbitt in the United States aggregated 550 tons during June, compared with 600 tons in the preceding month and 900 tons a year ago.

Pipe

Bids Being Taken on 3500 Tons For New York Federal Building—80-Mile Oil Line Projected

PIPE PRICES, PAGE 63

New York—Bids were to be opened July 11 on approximately 3500 tons of steel pipe by the George J. Atwell Foundation Corp., 136 East Fifty-seventh street, general contractor, for the foundation for the new federal courthouse here. It is believed possible, however, that the award may go over until fall. Syracuse Lighting Co., Syracuse, N. Y., will be in the market shortly for approximately 15 miles of welded steel pipe for installation between Syracuse and Onondaga, N. Y. About 600 tons of steel pipe will be required for a steam distribution system at Washington.

Cast-pipe buying is dull, the majority of state projects having been placed. Pipe yards here are bare, but expected inquiry for yard stocks still is withheld. Prices are steadier, and small lots are moving slightly higher.

Boston—Cast pipe buying is limited largely to fill-in lots. Smaller cities and towns have covered for the year, and the larger cities and utilities are slow to go forward with work planned. Prices are slightly firmer.

Philadelphia—Atlantic Oil Producing Co. has recently closed on approximately 1000 tons of casing for installation in the Texas oil fields. This makes a total of 2000 tons to have been placed with various producers since May 1. This company also is considering the purchase of 80 miles of 10¾-inch line pipe.

Pittsburgh—Orders for standard steel pipe, and butt and lap welded, were smaller individually in June than in May. One mill reports better interest by jobbers in June. Some encouragement is derived from progress by the oil industry, but financing difficulties retard a considerable amount of projected gasoline pipe lines. Pipe mill operations are slightly easier at from 10 to 12 per cent.

Chicago—The market for cast pipe continues depressed by unfavorable conditions in the bond market which are preventing inauguration of work in a number of municipalities. Orders and inquiries usually are for lots of a carload and less, one exception recently being the award of about 4000 tons by Milwaukee. Competition is resulting in considerable pressure against prices.

Birmingham, Ala.—Few pipe awards have been received here recently, and production is held to 25 to 30 per cent. Financial and political conditions make it difficult for municipalities to authorize improvements at this time.

Cast Pipe Placed

3900 tons, 24 to 36-inch, Milwaukee; 3650 tons to James B. Clow & Sons Co., Chicago; remainder to Donaldson Iron Co., Emaus, Pa., and Bessemer Foundry & Machine Co., Chicago.

195 tons, state project, West Haverstraw, N. Y., to United States Pipe & Foundry Co., Burlington, N. J., through Charles Alberto, Paterson, N. J., contractor.

Steel Pipe Placed

250 tons, approximate, 555 lengths, shore discharge pipe, United States engineer, Philadelphia, to Lancaster Iron Works Inc., Lancaster, Pa., $24.50 per length, 16 feet, 3 inches.

Cast Pipe Pending

333 tons, 4 to 10-inch, class 150, Whittier, Calif.; bids July 18.

155 tons, water lines, farm buildings, Pilgrim state hospital, Brentwood, N. Y.

100 tons, 3 to 6-inch, veterans' hospital, Batavia, N. Y.; bids in.

Unstated tonnage, 6000 lineal feet of 14 or 16-inch class C pipe, Fond du Lac, Wis.; bids about Aug. 1.

Steel Pipe Pending

600 tons, steam distribution system for central heating plant, Washington; North-Eastern Piping & Construction Corp., North Tonawanda, N. Y., low.

Unstated tonnage, 10,801 cold-drawn seamless boiler tubes, 5055 for Boston, Brooklyn and Norfolk, Va., Michigan Seamless Tube Co., South Lyon, Mich., low, $3268.47, delivered; 5746 for Puget Sound, same company low, $4502.14, delivered.

Unstated tonnage, 41,000 feet, 2-inch and under, galvanized steel or wrought iron, Panama; bids July 20.

Refractory Buying Slow; Makers' Stocks Large

Refractories Prices, Page 54

Pittsburgh — Refractory brick users are even slower in releases. Considerable work could be done on open-hearth furnaces, but blast furnace linings are generally in good shape. First quality fire clay and silica brick continue $35. Western and southern prices on silica have been revised to $44 to $45, respectively. Dead burned grain magnesite brick is $38.50, eastern seaboard. Stocks of all grades of refractories in producers' hand continue large.

Strip

Specifications Fall Off as Automotive Needs Diminish—Untested Prices Are Steady

STRIP BAR PRICES, PAGE 45

Pittsburgh—Hot-rolled strip specifying was extremely quiet last week, with general buying and automotive orders considerably less than week before last. Hot-rolled mills are holding 1.45c, Pittsburgh base, for carload material and $1 up for smaller lots. A Ford Motor Co. purchase may materialize early this week, which should involve some strip and stripsheets. Cold-rolled strip is inactive, but the price is fairly firm at 2.00c, Pittsburgh.

Philadelphia—Little tonnage is coming out to test the new 1.45c, Pittsburgh, price on hot strip. This figure, however, appears to be generally quoted on carlots, with $1 premium being asked on smaller quantities. Cold-rolled also is untested at 2.00c, Pittsburgh.

Youngstown, O.—Strip steel orders and specifications had been slipping off for some days before July 4 and have not picked up appreciably. Quotations into third quarter show no change from second quarter.

Cleveland—Stampers here are figuring on a little business, but are not showing any great activity. Inquiries are small, and for spot requirements. Automotive orders are slower. Responsive to these factors, strip production has tapered. Wide and narrow widths of hot-rolled hold at 1.45c, base, Pittsburgh, for large users, and 1.50c for smaller buyers. Cold-rolled is 2.00c, base, Cleveland.

Chicago—Strip specifications experienced a mild upturn after the holiday, although demand is moderating slightly from most automotive interests. Mill operations continue slightly above 15 per cent. Prices are receiving slight test by the small volume of current business, continuing 1.60c, Chicago, for small lots of hot strip and 2.00c, Pittsburgh-Cleveland, for cold-rolled strip.

Steel Rate Down to 12 Per Cent; May Rise This Week

Pittsburgh—Steel production in the week ended July 2 was at 10 per cent, the five point decline from the week ended June 25 being due to the delayed manner in which plants shut down over July 4 resumed. Two small independent mills closed their open-hearth departments until at least July 10. The largest interest has not resumed as quickly as expected and many of its operating divisions are entirely closed. Outlook for this week is dependent on day-to-day orders, but production may be stepped up to possibly 12 per cent.

Operations, week ended July 9	**12**
Operations, week ended July 2	**14.5**
Operations, week ended June 25	**17**
Operations, one year ago	**33.5**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 9	**12**

Seven out of 54 steelworks blast furnaces here are in blast.

Philadelphia—Eastern operations are at 11-13 per cent, with little variation near. Last week one eastern mill put a furnace into operation after a shutdown of about a month.

Buffalo—Buffalo district open-hearth operations will rise to 19 per cent this week, if schedule is maintained. This will be an eight point rise from last week. Seven open hearths are scheduled for operation starting July 11.

Cleveland—Steel ingot production here for the week ended July 9 averaged 15 per cent. American Steel & Wire Co. did not operate any open hearths. Corrigan, McKinney Steel Co. resumed on July 5 with four, one more than just prior to July 4, while Otis Steel Co. started up with two, same as before the holiday. Operations this week are indefinite. The American company was to resume with five units July 11, but may delay for several days.

Chicago—Ingot production was unchanged the past week at almost 14 per cent and is expected to hold at least that average this week. Blast furnace schedules also are unchanged, eight of 36 steelworks stacks remaining active. Finishing mill operations generally are unchanged, although rail production is being resumed on a limited scale.

Birmingham, Ala.—Gulf States Steel Co. by lighting two open hearths at Gadsden has lifted steelmaking operations in this district from 19 per cent to 21-22. Four open hearths continue on at the Fairfield works of the Tennessee Coal, Iron & Railroad Co.

Iron Ore Consumers Revising Requirements

Iron Ore Prices, Page 54

Cleveland — Ford Motor Co. is inquiring for 3000 tons of lump iron ore for use in the open hearth. This is a fill-in order, the company not having issued an inquiry for 300,000 to 400,000 tons, as it has done each year for several years. It now appears doubtful if it will put out an inquiry for a substantial tonnage this season. Some consumers recently have revised downward their ore requirements for the season, asking operators to cancel a portion of their previous estimates. Shipments from Lake Erie ports to furnaces in June amounted to 534,998 tons, compared with 3,016,358 tons in that month last year. The dock balance July 1 was 5,374,337 tons, against 5,156,692 tons July 1, 1931.

By-Product Is 97 Per Cent of 1931 Coke Output

Final statistics of the coke industry in 1931, by the bureau of mines, Washington, put the production of by-product at 32,355,549 net tons valued at $158,090,123 and of beehive at 1,128,337 net tons valued at $3,518,601. Other salient facts of the industry for 1931 follow:

	By-Product	Beehive
Coke produced:		
Net tons	32,355,549	1,128,337
Value	$158,090,123	$3,518,601
Screenings and breeze produced:		
Net tons	3,126,285	49,432
Value	$ 6,637,976	$ 73,809
Coal charged into ovens:		
Net tons	46,846,277	1,766,783
Value	$166,161,532	$2,758,198
Aver. value	$ 3.55	$ 1.56
Average yield in per cent of coal charged:		
Coke	69.07	63.86
Breeze (at plants actually recovering)	6.67	4.81
Ovens:		
In existence Jan. 1, 1931	12,831	23,907
In existence Dec. 31, 1931	13,108	21,588
Dismantled during year	.....	2,357
In course of construction Dec. 31	.....	.....
Daily capacity of ovens Dec. 31, net tons	173,948	.....
Coke used by operator:		
In blast furnaces—		
Net tons	16,622,325	.....
Value	$ 68,650,546	.....
For other purposes—		
Net tons	1,691,407	233
Value	$ 10,684,995	$ 586

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50
Cleveland fur., local del.	15.50
Philadelphia, delivered	14.26 to 14.76
Virginia furnace	17.50
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90 to 19.40
Buff., all-rail, Newark	17.28 to 17.78
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.40 to 19.90
Buffalo, all-rail, Newark	17.78 to 18.28
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	18.00
Eastern, del. Phila.	14.76 to 15.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila	15.26 to 15.76

MALLEABLE

Valley furnace	14.50
Cleveland fur., local del.	15.50
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.50 to 15.00
Pittsburgh, delivered	15.13 to 16.13
Eastern Penn., del.	14.50 to 15.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.00 to 2.25
Connellsville foundry	3.00 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens	7.00
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.25 to 10.50
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50% (nom.)	22 cents
Brazilian, 46-48% (nom.)	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet Ill., East Chicago, Ind.	44.00
Birmingham, Ala.	45.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$61.50

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.50
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bessemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	28.00
Forging, Chicago	33.00 to 34.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	36.75 to 37.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	25.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do. 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	95.00
2% carbon	100.00
1% carbon	110.00
(The above for spot carlots. Contracts for 500 tons or more, $5 less).	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	68.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $4.25 unitage	91.00
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, domes., net ton, del. Pitts. equiv.	$20.31
Washed gravel, import duty paid tide, gross ton	19.50

Pig Iron

More Foundries Closing for Part Of July—Shipments Slower—Chicago, Valley Prices Easier

PIG IRON PRICES, PAGE 54

Pittsburgh—Demand for pig iron is made up solely of occasioned carloads. Buyers apparently are not making efforts to gain concessions below the $15, district furnace base, on this class of business. One maker reports moving a few cars of foundry iron last week, representing customers' monthly contract requirements. Quotations of $15 for bessemer, malleable and foundry iron have not been changed. There is no demand for basic iron here or at any of the outlying shipping points in this district.

Boston—Low prices for pig iron fail to attract volume. Sales for the week were in small lots, probably less than 350 tons, mainly for truck delivery, with the local producer taking about half of the business at a range of $16 to $17, furnace. Indian iron is offered at $16, dock, and Dutch iron at $14.50 to $15, dock.

New York—Included in the few current inquiries are two lots of foundry iron, approximately 100 tons each. While some sellers reported an improvement in shipments in June, they were the exception. Shipments were so light that the trend was of little significance. Buffalo iron is unchanged at $14 to $15.50, furnace, for shipments in this district, and eastern Pennsylvania iron $13.50 to $14, furnace.

Philadelphia — Pig iron sellers look for little improvement this month, a number of foundries planning to take more than the usual periods for seasonal shutdowns. Few foundries are operating on anything like an active basis. These include a manufacturer of ice machinery, an automotive engine manufacturer, and a local jobbing foundry. A little more activity is noted at certain stove foundries. Eastern Pennsylvania foundry iron is holding at $13.50 to $14, furnace, with the lower figure the more representative. Continental iron offered under this range continues a depressing factor. A Delaware river pipemaker is reported to have nearly 40,000 tons of iron in stock, including a large proportion of foreign iron.

Buffalo—The largest inquiry for iron for third quarter, 450 tons for a New Jersey melter, was closed without any portion coming here. One of the three blast furnaces now operating in this district probably will be banked in the near future unless merchant demand takes an unexpected turn for the better.

Youngstown, O. — Pressure for sales of pig iron from adjoining producing districts has become so insistent that carload lots are setting the market levels here, as well as in Pittsburgh. Recent sale of some offfoundry iron in carload lots has brought a price recession of about 50 cents in malleable, No. 2 foundry and basic. The nominal quotation today on malleable and No. 2 is $14.50, the former price range having lost its top of $15, valley. Basic is held nominally at $14, furnace, while strictly standard bessemer still is around $14.50 to $15.

Cleveland—Pig iron shipments so far this month are on a slightly lower basis than the daily average for June. Low prices on scrap are leading some foundries to use more than the usual proportions in their melt. Foundry operations in the Cleveland district do not average more than one day a week; a few are working two days. While reports of offers at less than $15.50, base, furnace, for local delivery, are more frequent, makers say the price is entirely nominal, in the absence of test sales. For outside shipment $14 to $14.50, base, furnace, are the usual quotations, with lower prices quoted in distant competitive territories.

Cincinnati—Inquiries for pig iron the past week were more numerous, all for carload lots. Southern furnaces remain firm at $10, base, Birmingham.

Chicago—Scattered carload orders for pig iron represent no change in the total volume of business. Activity moderated slightly over the past 30 days and inquiry and prospective business point to continued inactivity during July. Buyers are taking only sufficient for immediate needs. The market now is $15.50 furnace for No. 2 foundry and malleable grades, the former $16 price having disappeared. Southern iron continues $16.01, delivered.

St. Louis—The majority of stove foundries here closed July 2 to remain down until July 11. The malleable melt continues exceptionally light.

Birmingham, Ala.—The number of small sales shows no improvement. Optimism expressed by cast iron pipe manufacturers is not shared by blast furnace interests.

Toronto, Ont.—Merchant pig iron sales showed a sharp falling off in the past week, due largely to the Dominion holiday. The total for the past week, made up of single carlots, was 200 to 300 tons.

Coke

Water Gas Producers Continue To Increase Orders—Furnace And Foundry Needs Slow

COKE PRICES, PAGE 54

Pittsburgh—By-product coke shipments appear to be improving as specifications for July were issued late last week. Demand for coke for water gas production is holding its recent improvement and some interests are specifying several carloads daily for an indefinite period. Inactivity at foundries is restricting shipments. Foundry coke is unchanged at $3 to $4.25 according to analysis.

New York—With seasonal shutdowns at many foundries which in some instances will continue throughout the greater part of July, metallurgical coke specifications are light. Prices show a softer tendency, with beehive furnace coke for heating purposes $1.50 to $2, Connellsville, and for smelting purposes, $2 to $2.15, Connellsville. Beehive foundry coke now appears to be about $2.75 to $3.85, ovens. By-product foundry coke unchanged at $8.21 to $8.81, delivered Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Philadelphia—Some improvement is noted in demand for coke for water gas and the production of dry ice. Prices on beehive coke are easy, with by-product coke unchanged.

Cincinnati—Demand for by-product foundry coke continues dull. The market for domestic grades is affected by credit conditions.

Chicago—Metallurgical coke shipments still follow a downward trend, specifications showing a moderate decrease over the past 30 days. The market continues $7, ovens.

Birmingham, Ala. — By-product coke ovens in operation are not pushing production. The base price of foundry coke is firm at $4, ovens.

Scrap + Baling = $$$

WE BUILD

BALING PRESSES

HYDRAULIC PRESSURE PUMPS

HYDRAULIC STRAIGHTENERS

SPECIAL HYDRAULIC PRESSES

ACCUMULATORS

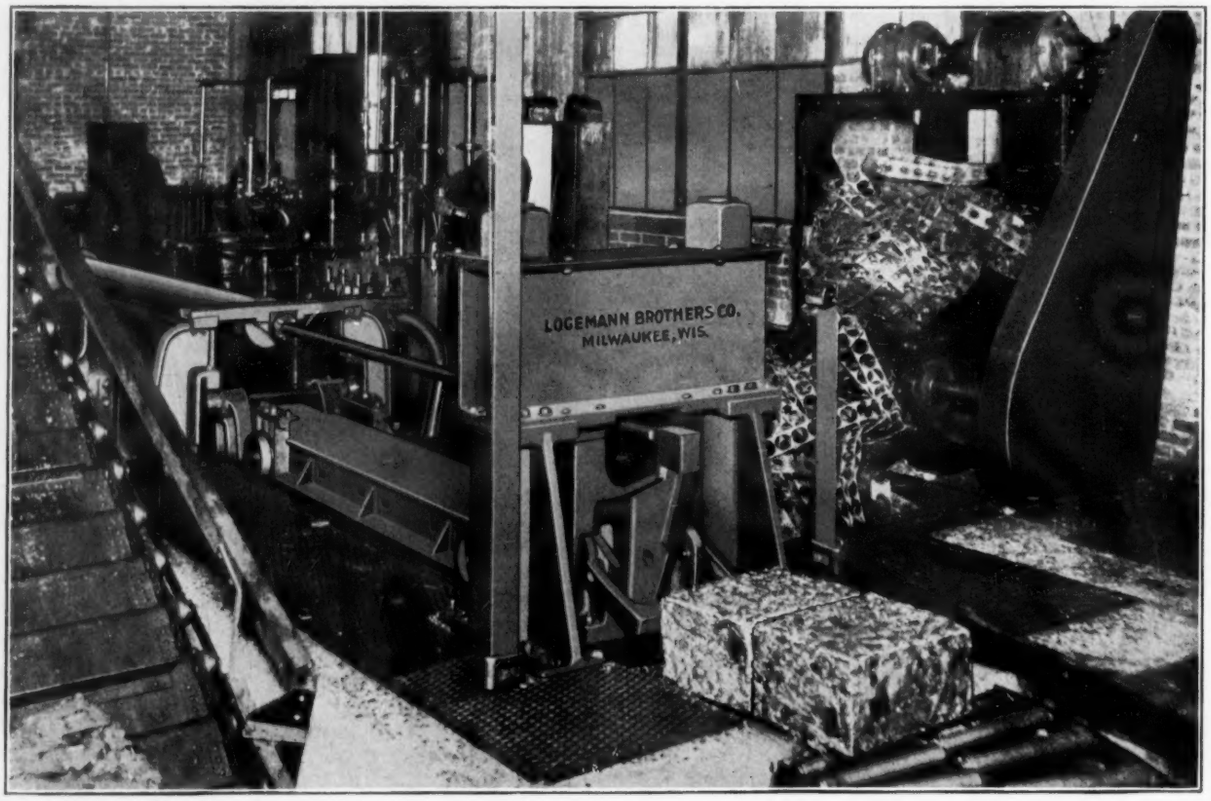
Write Us Your Problems

Hydraulically-compressed scrap commands at all times the best price - - can be more economically handled - - can be readily held for favorable markets.

Baling practically eliminates corrosion - - saves much heat in remelting - - permits easy loading of scrap cars to capacity.

The installation below is in a plant making automotive electrical equipment. Scrap comes to the baling room over the horizontal conveyor at the right, is caught by the hopper, while press is finishing a bundle, then automatically charged into press. Press cover shoves the finished bundles to the rollers carrying them to the inclined apron-conveyor at the left, this discharges directly into gondola-car outside.

Our Engineering Department, with years of experience on installations of all kinds, is at the service of interested scrap-producers. Write us.



LOGEMANN BROTHERS COMPANY

3126 W. BURLEIGH STREET MILWAUKEE, WISCONSIN

BRANCH OFFICES IN ALL PRINCIPAL CITIES

Scrap

Price Decline Moves Steadily as Melters Take No Tonnage—All Stocks Are Increasing

Chicago—Scrap prices are drifting downward as the result of continued absence of demand. Mills have been out of the market for heavy melting steel for six weeks. Although the last purchase of this grade was made at $6.50, material has been offered at less in the meantime and a nominal figure around $5 now prevails on that grade. Shipments against the small volume of unfilled orders remain light, reflecting the restricted rate of open-hearth operations. Quotations on other grades are nominal but weak, while offerings by leading scrap producers are restricted. Railroads generally are withholding scrap from the open market but in some cases seek to trade scrap for steel.

Boston—Scrap buying continues

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to	7.00
Boston, dealers	3.35 to	3.75
Buffalo, No. 1	6.50 to	7.00
Buffalo, No. 2	5.00 to	5.50
Chicago	4.50 to	5.50
Cleve., No. 1	6.50 to	7.00
Cleve., No. 2	6.25 to	6.75
Det., No. 1 deal.	4.00 to	4.50
Det., No. 2 deal.	2.00 to	2.50
E. Pa. del. mill		6.00
E. Pa., No. 2 del.		4.00
N. Y. deal, R. R.	3.00 to	3.50
N. Y. deal, No. 2	1.00 to	2.00
N. Y. deal. yd.	2.50 to	3.00
Pitts. No. 1	8.00 to	8.50
St. L. No. 1 sel.	5.50 to	6.00
Federal, Ill.	5.00 to	5.50
Granite City, Ill.	4.50 to	5.00
Valleys, No. 1	8.50 to	9.00

COMPRESSED SHEETS

Buffalo, dealers	5.00 to	5.50
Chi. (Factory)	4.00 to	4.50
Cleveland	6.50 to	7.00
Detroit, dealers	4.00 to	4.50
E. Pa. new mat.	5.00 to	5.50
Pittsburgh	7.50 to	8.00
Valleys	8.00 to	8.50

BUNDLED SHEETS

Buffalo	4.00 to	4.25
Cinci., del.	4.00 to	4.50
Cleveland	6.00 to	6.50
Eastern, Pa.		5.00
Pittsburgh	6.50 to	7.00
St. Louis	1.50 to	2.00

SHEET CLIPPINGS LOOSE

Chicago	2.50 to	3.00
Cincinnati	2.50 to	3.00
Detroit, dealers	1.25 to	1.75
St. Louis	1.50 to	2.00

STEEL RAILS SHORT

Birmingham	10.00 to	10.25
Boston, dealers	4.00 to	4.50
Buffalo	9.00 to	9.50
Chicago (3 ft.)	7.00 to	7.50
Chicago (2 ft.)	7.50 to	8.00
Cinci., deal.	8.50 to	9.50
Detroit, deal	7.00 to	7.50
Pitts. (open-hearth, 3 ft. and less)	10.00 to	10.50
St. Louis	7.50 to	8.00

STOVE PLATE

Birmingham	5.50 to	6.00
Boston, dealers	2.00 to	2.50
Buffalo	6.50 to	7.00
Chicago, net	4.50 to	5.00
Cinci., deal. net	3.25 to	3.75
Det., net deal.	2.50 to	3.00
Eastern Pa.		6.00
N. Y., deal. mill	2.50 to	3.00
St. Louis	5.50 to	6.00

COUPLERS, SPRINGS

Buffalo	9.00 to	9.50
Chicago	6.50 to	7.00
Eastern Pa.	7.50 to	8.00
Pittsburgh	8.50 to	9.00
St. Louis	6.00 to	6.50

ANGLE BARS—STEEL

Chicago	6.50 to	7.00
St. Louis	6.00 to	6.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to	9.50
Cleveland bil. and bloom crops	9.00 to	10.00
Eastern Pa.	9.00 to	10.00
Pittsburgh billet bloom crops	10.50 to	11.00
Pitts., sheet bar crops	10.75 to	11.25

FROGS, SWITCHES

Chicago	5.00 to	5.50
St. Louis	6.00 to	6.50

SHOVELING STEEL

Chicago	5.00 to	5.50
Cleveland	6.25 to	6.50
St. Louis	4.50 to	5.00

RAILROAD WROUGHT

Birmingham	6.00 to	6.50
Boston, dealers	1.00 to	1.50
Buffalo, No. 1	4.25 to	4.75
Buffalo, No. 2	6.50 to	7.00
Cinci., No. 2	4.50 to	5.00
Chicago, No. 1	4.00 to	4.50
Chicago, No. 2	4.50 to	5.50
Eastern, Pa.	6.00 to	6.50
N. Y., No. 1, deal.	2.50 to	3.00
Pitts., No. 2	8.00 to	8.50
St. Louis, No. 1	3.50 to	4.00
St. Louis, No. 2	4.50 to	5.00

SPECIFICATION PIPE

Boston	4.00 to	4.25
Eastern Pa.	7.00 to	8.00
N. Y., deal	2.00 to	2.25

BUSHELING

Buffalo, No. 1	5.00 to	5.50
Chicago, No. 1	4.00 to	4.50
Cinn., No. 1 dl.	3.75 to	4.25
Cinn., No. 2	2.25 to	2.75
Cleve., No. 2	4.00 to	4.25
Det., No. 1 new deal.	3.00 to	3.50
St. L., No. 1	3.00 to	3.50
Val. new No. 1	8.00 to	8.50

MACHINE TURNINGS

Birmingham	3.00 to	3.50
Boston, dealers	0.50 to	1.00
Buffalo	3.00 to	3.50
Chicago	2.00 to	2.50
Cin., deal.	2.75 to	3.25
Cleveland	3.00 to	3.50
Detroit	1.25 to	1.75
Eastern Pa.	3.00 to	3.50
N. Y., deal	1.35 to	1.50
Pittsburgh	5.00 to	5.50
St. Louis	1.50 to	2.00
Valleys	5.75 to	6.25

BORINGS AND TURNINGS
For Blast Furnace Use

Boston, dealers	.60 to	.75
Buffalo	3.25 to	3.50
Cinn., deal.	2.75 to	3.25
Cleveland	3.50 to	4.00
Detroit, deal.	1.75 to	2.25
Eastern Pa.	3.00 to	3.50
N. Y., deal	1.35 to	1.50
Pittsburgh		5.00

CAST IRON BORINGS

Birming., chem.	12.50 to	13.00
Birming., plain	3.00 to	3.50
Boston, chem.	5.00 to	5.50
Boston, dealers	1.00 to	1.25
Buffalo	3.25 to	3.75
Chicago	2.00 to	2.50
Cinn., deal.	2.75 to	3.25
Cleveland	3.50 to	4.00
Detroit, deal.	1.75 to	2.25
Eastern Pa.	3.00 to	3.50
E. Pa., chem.	8.00 to	10.50
N. Y., deal.	1.00 to	1.50
Pittsburgh		5.00
St. Louis	2.75 to	3.25

PIPE AND FLUES

Cinn., deal.	3.00 to	3.50

RAILROAD GRATE BARS

Buffalo	4.00 to	4.50
Chicago, net	4.50 to	5.00
Cincinnati	4.25 to	4.75
Eastern Pa.		6.00
N. Y., deal.	3.50 to	4.00
St. Louis	4.50 to	5.00

FORGE FLASHINGS

Boston, dealers	2.00 to	2.50
Buffalo	4.00 to	4.50
Cleve. ov. 10 in.	6.50 to	7.00
Detroit	3.00 to	3.50

FORGE SCRAP

Boston, dealers	1.75 to	2.00
Chicago	6.50 to	7.00
Eastern Pa., del.	5.00 to	5.50

ARCH BARS, TRANSOMS

Chicago, net	4.50 to	5.00
St. Louis	5.00 to	5.50

AXLE TURNINGS

Boston, deal.	6.00 to	6.50
Buffalo	6.50 to	7.00
Chi., elec. fce.	4.00 to	4.50
Cleveland	6.50 to	6.75
Eastern Pa., del.		6.00
Pittsburgh, O. H.	7.00 to	7.50
St. Louis	3.50 to	4.00

STEEL CAR AXLES

Birmingham	10.00 to	10.50
Boston, ship. pt.	6.50 to	7.00
Buffalo	10.00 to	10.50
Chicago, net	8.00 to	8.50
Eastern Pa.		14.50
St. Louis	8.25 to	8.75

SHAFTING

Boston, ship, pt.	8.50 to	9.00
N. Y., deal.	6.50 to	7.00
St. Louis	7.50 to	8.00
E. Penna.		12.50

CAR WHEELS

Birming., iron	7.00 to	7.25
Boston, iron deal.	4.00 to	4.50
Buffalo, iron	7.00 to	8.00
Buffalo, steel	8.00 to	8.50
Chicago, iron	5.50 to	6.00
Chi., rolled steel	6.25 to	6.75
Cincinnati iron	6.25 to	6.75
E. Pa. steel	7.50 to	8.00
E. Pa. iron	9.00 to	9.50
Pitts., iron	8.50 to	9.00
Pitts., steel	8.50 to	9.00
St. Louis, iron	5.00 to	5.50
St. Louis, steel	5.00 to	5.50

NO. 1 CAST SCRAP

Birmingham	6.50 to	7.00
Buffalo (Mach.)	8.75 to	9.25
Buffalo, cupola	8.00 to	8.25
Boston, textile	7.00 to	7.50
Chicago, mach.	6.15 to	6.70
Chi., railroad, net	5.00 to	5.50
Chicago, agri., net	4.50 to	5.00
Cinn., mach. cup.	7.50 to	8.00
Cleve. cupola	6.50 to	7.00
Det., net deal.	6.50 to	7.00
E. Pa. cupola		9.00
N. Y., cup. deal.	5.00 to	6.00
N. Y., del. local foundries	7.50 to	8.00
Pitts., cupola	8.50 to	9.00
San Fran., del.	13.50 to	14.00
Seattle	5.00 to	7.50
St. L. No. 1 ma...	6.50 to	7.00
St. L., No. 1	6.00 to	6.50

HEAVY CAST

Boston, del.	2.75 to	3.00
Bost., mach. cast	7.00 to	7.50
Buffalo, break.	5.00 to	5.50
Cleve., break	3.50 to	4.00
Detroit, auto, net deal.	7.50 to	8.00
Det., break., dl.	3.75 to	4.25
Eastern Pa.	7.50 to	8.00
N. Y. No. 1, dl.	4.00 to	4.25
N. Y. break, dl.	3.50 to	4.00
Pittsburgh	7.75 to	8.25

MALLEABLE

Boston Consum.	6.00 to	6.25
Buffalo	7.50 to	8.00
Chicago, agri.	5.00 to	5.50
Chicago, R. R.	5.50 to	6.00
Cinci., R. R., del.	7.50 to	8.00
Cinci., agri. del.	7.00 to	7.50
Cleveland, rail	7.50 to	8.00
Det. auto deal.	5.00 to	6.00
St. Louis, rail	4.75 to	5.25

RAILS FOR ROLLING
5 feet and over

Birmingham	8.00 to	9.00
Boston, deal.	5.00 to	5.50
Buffalo	7.00 to	7.50
Chicago	7.00 to	7.50
Eastern Pa.		9.50
New York dealer	4.25 to	4.75
St. Louis	7.00 to	7.50

LOCOMOTIVE TIRES

Chicago, cut	7.00 to	7.50
St. L., No. 1	4.50 to	5.00

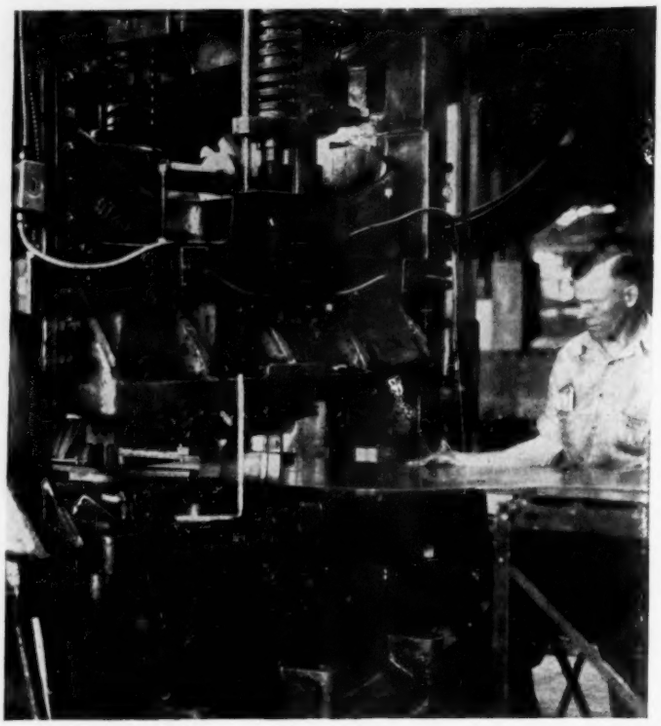
LOW PHOS. PUNCHINGS

Chicago	7.00 to	7.50
Buffalo	9.00 to	9.50
Eastern Pa.	9.50 to	10.00
Pittsburgh	9.00 to	9.50

Punching

In punching, as in other fabricating operations, Youngstown Sheets have consistently effected worthwhile manufacturing economies for thousands of fabricators.

The picture at the right shows a punching operation in the manufacture of one of the thousands of products which are constantly demonstrating the outstanding advantages of Youngstown Sheets in all fabricating operations.



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YOUNGSTOWN

SHEETS FOR EVERY PURPOSE .. INCLUDING YOURS

dull. Heavy cast has brought bids as low as $2.75, shipping point. About 3000 tons of rails from the abandoned Boston-Worcester railroad have been bought by Joseph Gordon. Several other smaller lots of scrap rails have also been sold. A boat is loading cast scrap, about 2000 tons, mainly machinery cast, for shipment to a Canadian port. Little No. 1 steel is moving to New England consumers at $5 to $5.25, delivered.

New York — Scrap buying has dropped almost to the vanishing point with prices on most grades nominal. Following a halt in the buying of No. 1 steel for boat loading, dealers buying prices have dropped and $3 is now offered for any business available, although little has been bought at that figure. Cast grades are dull and pipe foundries are not taking shipments in any volume.

Philadelphia — Little new scrap tonnage is coming out here and current prices in many instances are nominal. Bethlehem Steel Co. is buying nothing in this district although it recently closed on 100 tons of No. 1 steel for Lackawanna, N. Y., at the reduced price of $6.50, delivered. In the eastern Pennsylvania district $6 is about the best that can be done on new tonnages; however, some dealers continue to pay this price for material against contracts, or $6.50, consumers' delivered price.

Buffalo — Machine shop turnings have been sold for nearby delivery at prices that figure back close to $3, Buffalo. Quotations on borings and turnings also have been revised downward.

Pittsburgh—Small sales at $8 to $8.75 for heavy melting steel reduce the spread on this item to $8 to $8.50. A test in mill buying, however, has not put in an appearance. Bids of about $8 and under were reported on the 1500 tons of No. 1 heavy melting steel which the Pennsylvania railroad closed on July 6. Baltimore & Ohio is selling 800 tons of No. 1 steel and 700 tons of scrap rails, to close July 11. Prices on practically every grade of scrap but heavy breakable cast are nominal. Blast furnace material is especially dull,

Cleveland—Shipments of steel and iron scrap are at a minimum, only actual current necessities being taken. Dealers are laying down some choice heavy melting steel at bargain prices and some borings are being stored.

Cincinnati—Dealers in iron and steel scrap see little chance to break through the lethargy of mills. Occasional, small-lot transactions indicate prices are easy. Scrap lists of the Chesapeake & Ohio and Norfolk & Western railroads are up for bidding in a few days.

Detroit—Iron and steel scrap prices have undergone radical revision. No. 1 heavy melting steel and compressed sheets being reduced 50 cents to a range of $4 to $4.50, with other grades proportionate. Only stove plate, forge flashings, and automobile malleable prices are unchanged this week. In general, automobile manufacturers are marketing less scrap and demand from consumers also is smaller.

St. Louis—This has been another dull week in the scrap market. Mills are buying almost nothing either of melting or rolling mill grades. Dealers are merely marking time, buying only such scrap as is required to fill existing contracts, which are small. Some prices are lower on recent purchases from railroads.

Birmingham, Ala.—No change is noted in quotations on steel and iron scrap, prices being considered nominal. Dealers are out of the market.

Toronto, Ont.—New business in the iron and steel scrap markets is dull and featureless. A few special iron grades are in steady demand but all orders are in small lots. No. 1 machinery cast continues most active, with a slight improvement in malleable scrap. Dealers are out of the market and prices are unchanged.

Silicomanganese Prices Are Down $10 to $15

Ferroalloy Prices, Page 54

Ferroalloy specifications are following the downward trend in operations at iron and steel plants. Ferromanganese is unchanged at $68, duty paid; and spiegeleisen, $25, base, for the 19 to 21 per cent grade. Silicomanganese has been reduced on spot carlots to $95 a gross ton for 2½ per cent carbon, and $100 for 2 per cent, a $15 dollar reduction; and to $110 for 1 per cent, a $10 reduction. Contracts are $5 a ton less. No revision has been made in silicospiegel, on either the 4 per cent or the 7 to 8 per cent grade.

Semifinished Market Is Firm; Few Contracts

Semifinished Prices, Page 54

Sheet bars, billets and slabs remain firm at $26, base, Cleveland, Youngstown, O., and Pittsburgh. A small lot of slabs for immediate delivery was sold in the week at a higher figure by a Youngstown producer. Consumers generally are taking small lots from their regular sources of supply as required, and few contracts have been placed for third quarter. At Cleveland, a call for more sheet bars from several sheet mills resulted in increasing the number of the leading merchant producer's active open hearths from three to four. Forging billets are steady at $33, Pittsburgh, and wire rods, $37.

Warehouse Trade Slow; Some Prices Advanced

Warehouse Prices, Page 63

New York—New base price for hoops and bands is 3.30c, subject to warehouse differentials for quantity and new extras for size. Volume with jobbers continues light, no improvement from recent weeks being apparent.

Philadelphia—A fair demand for sheets out of warehouse is more than offset by continued dullness in structurals. Except for some government and civic work, which usually means little to the jobber, building is at a low ebb. General trading also is affected by various seasonal shutdowns at consuming plants. Prices are unchanged.

Pittsburgh—The local warehouse trade anticipates a slower demand in July than in any previous month this year. Since the recent holiday, orders have been light. Prices are unchanged.

Cleveland — Warehouse business here has fallen off slightly since the first of the month, to the average noted early in June. Prices are firm.

Detroit—Bolts in case lots have been increased from 70 and 10 off to 70 off; in less-case lots the advance is from 70 off to 65 and 10 off. This conforms with the recent stiffening of mill prices. Warehouse business remains on about the same low level as June.

Cincinnati—Jobbers report retarded resumption of buying immediately following the holiday, showing little hope for a tonnage this month greater than in June. Prices are steady.

Chicago—Holiday influences assisted in bringing warehouse activity to almost a complete standstill recently, and June sales were slightly lower than those of May. Former prices generally are being continued except for a $1 a ton advance on cold-rolled bars. New extras are in effect on hoops and bands, with base prices unchanged.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.75c, Conn., for copper

Sheets

Yellow brass (high)	12.00
Copper, hot rolled	14.87½
Lead sheets, cut, to jobbers	6.50
Zinc sheet (100-lb. base)	9.00

Tubes and Pipes

Seamless yellow brass (high)	15.25
Seamless copper	14.37½

Rods

Yellow brass (high, full turnings)	9.75
Naval brass	10.87½

Anodes

Copper untrimmed	11.75

Wire

Yellow brass (high)	12.00

Old Metals

Dealers' buying prices, cents lb. No. 1 Composition Red Brass

New York	2.50 to 2.75
Chicago	1.87½ to 2.00
Cleveland	2.50 to 3.00
St. Louis	2.25

Heavy Yellow Brass

New York	1.75 to 1.87½

Heavy Copper and Wire

New York	3.37½ to 3.62½
Chicago, No. 1	3.00 to 3.25
Cleveland	2.75 to 3.25
St. Louis	2.75

Composition Brass Borings

New York	2.25 to 2.50

Yellow Brass Tubing

Cleveland	1.25 to 1.75

Light Copper

New York	2.75 to 2.87½
Chicago	2.00 to 2.25
Cleveland	2.25 to 2.75
St. Louis	2.25

Light Brass

Chicago	1.12½ to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.00

Lead

St. Louis	2.00

Zinc

New York	0.75 to 1.00
Cleveland	0.87½ to 1.00
St. Louis	1.00

Aluminum

Clippings, new, soft, Cleve.	9.00 to 9.50
Clippings, hard, Cleveland	6.00 to 6.50
Borings, Cleveland	3.00 to 3.50
Mixed cast, Cleveland	3.25 to 3.75
Mixed cast, St. Louis	2.50 to 3.00

Secondary Metals

Remelt, aluminum No. 12	7.00 to 8.00
Brass ingots, 85-5-5-5	6.00

Metals

Further Weakness Develops in Lead and Zinc but Copper and Antimony Hold—Tin Advances

New York—Further price weakness developed in lead and zinc last week but copper, antimony, aluminum and nickel remained unchanged. Tin prices advanced. Purchasing continued slow.

Copper—Domestic consumers still evidenced little interest in the copper market. Metal could be had at 5.37½c, Connecticut, from both custom smelters and mine producers for delivery into fourth quarter. Fabricators are operating an an extremely slow pace and in addition price cutting on metal for foreign shipment has had a dampening effect on the domestic market. Sales last week were made at 5.00c, c.i.f. European ports, or approximately the equivalent of ½-cent under the price in this country. All except three foreign members of Copper Exporters Inc. have resigned. The future setup of this body is uncertain.

Zinc—Quiet shading on the part of sellers was brought to light last week which weakened the whole price structure. A further large increase in stocks in addition to continued sluggish demand also were depressing factors.

Lead—Price uncertainty retarded buying last week. Although the leading interest quoted 2.80c, New York, metal could be had at 2.75c. In the St. Louis market, one interest was quoting 2.65c, but others asked five points less. Consumers are estimated to have about 25 per cent of their July needs yet to be covered and about 60 to 65 per cent of August requirements.

Tin—Quotations moved up at the end of the week to the higheht level in about two months under influence of strength in London where buying for pool account was active. Improved tone in commodity markets in this country also aided the situation.

Antimony—Buying interest continued listless but prices held at recent levels.

Aluminum—Prices remained unchanged but purchasing was reported slow.

Coke By-Products Are Moving at Slower Rate

New York—Demand for coke by-products is light, although prices are firm with the exception of naphthalene. Some stocks of the latter have been sold below current prices. Shipments against contracts have dropped and there is little spot business. Activity in toluol has declined, with the lacquer trade taking less. Some distributors are accumulating small stocks. Phenol and sulphate of ammonia are unchanged, although buying is light.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.26
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants

Phenol	0.153 to 0.173

Per Pound at Producers' Plants in

Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.00

Quicksilver Sales Small

New York—Quicksilver continues available at $57 a virgin flask of 76 pounds, in small lots for prompt delivery. A few scattered round lots are reported to have been sold at $56.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
July 2	5.37½	5.87½	5.12½	20.37½	20.90	2.75	2.60	2.67½	22.90	5.00	35.00
July 4—Holiday											
July 5	5.37½	5.87½	5.12½	20.37½	20.80	2.75	2.60	2.65	22.90	5.00	35.00
July 6	5.37½	5.87½	5.12½	20.87½	21.30	2.75	2.60	2.60	22.90	5.00	35.00
July 7	5.37½	5.87½	5.12½	21.25	21.65	2.75	2.60	2.60	22.90	5.00	35.00
July 8	5.37½	5.87½	5.12½	21.30	21.65	2.75	2.60	2.60	22.90	5.00	35.00

Europe

British Steel Tariff Extended to End of October — Domestic Trade Increasing Gradually

London—(*By Cable*)—British duties on steel have been extended to the end of October. Business continues disappointing, but the general tone shows slight improvement. Exports of pig iron are negligible. Domestic trade is gradually growing, but is exclusively hand-to-mouth. Australia is buying Scottish sheets and tubes.

The position of Continental markets is unchanged and prices are weak. Brussels reports the Belgian government is planning action to regulate production, owing to inability of steelworks to co-operate.

European Export Trade Continues at Low Level

London—European export markets continue practically stagnant. The action of the British tariff advisory committee will affect France and Belgium in particular, and Germany to a certain extent, although already for some time, exports of pig iron from those countries have substantially dwindled. The increased import duty on pig iron will help mainly the domestic trade. On the other hand, British export business is at a low ebb.

On the Continent also, reports from every iron and steel producing country are to the effect that export trade shows no sign of revival; and while there have not been great variations in prices recently and the level at present is the lowest recorded in history, the tendency is still downward. Continental sheet bars are quoted at £2 12s 6d at the current rate of exchange, equivalent to about $9.65 per ton, f.o.b. Antwerp or northern sea-ports; in fact, prices have reached such a low level that a number of works are now taking steps further to reduce their output, and it is reported from Belgium that the majority of French works have withdrawn from competing in the Belgian market, except for structural steel.

From Germany it is reported that some business is being transacted, and that orders for semifinished steel and structural steel have been received from Great Britain, while business is still being done with the United States and South America. An order for 1000 tons of flats has been received from Spain and Portugal at $15.50 per ton, f.o.b. Domestic markets on the Continent are also dull.

Belgian Steelworks Find Year Brought No Profit

Brussels — The annual general meeting of the stockholders of Hauts-Fourneaux et Acieries de Differdange-St. Ingbert-Rumelange, known as Hadir, was informed that the concern has suffered as a result of the increasing trade depression, but that, thanks to measures taken some time ago to improve manufacturing methods and efficiency, the future can be looked upon with confidence. The financial result for 1931 under review was a gross profit of 12,969,232 Belgian francs ($360,000). Most of the profit was appropriated for amortization purposes and a balance of over 200,000 francs ($5550) was carried forward.

A considerable sum was expended during the year on building new plant and modifying the blast-furnace plant at the Differdange works. The operation of the Differdange plant was only 35 per cent of that of the preceding year. Owing to the considerable drop in selling prices, it was found necessary to reduce wages and salaries.

At the Ottange works it was necessary to blow out the only furnace in operation at the beginning of November. The works of Saint-Ingbert have also seen their operations reduced, and the output of hoops and bands, in which this plant specializes, was substantially reduced.

Stockholders of Usines Metallurgiques du Hainaut at the annual general meeting found that, like every other iron and steel concern, this company has suffered seriously as a result of the trade depression. During 1931 two blast-furnaces were continually in operation. Notwithstanding that serious efforts were made to reduce production costs, the low selling prices which prevailed, particularly at the end of last year, prevented a profit.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, July 7

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d
Foundry, 2.50-3.00 Silicon	$10.44	2 18 6	$ 8.75 to $ 9.23	1 16 0 to 1 18 0
Basic bessemer	10.00	2 16 0*	7.41 to 7.90	1 10 6 to 1 12 6
Hematite, Phos. .03-.05	11.16	3 2 6	6.80 to 7.29	1 8 0 to 1 10 0
SEMIFINISHED STEEL				
Billets	$17.40	4 17 6	$9.23	1 18 0
Wire rods, No. 5 gage	26.78	7 10 0	21.87	4 10 0
FINISHED STEEL				
Standard rails	$29.45	8 5 0	$26.73	5 10 0
Merchant bars	.99c	6 5 0	.46c to .48c	2 2 0 to 2 4 0
Structural shapes	1.17c	7 7 6	.44c to .45c	2 0 0 to 2 1 0
Plates, †¼ in. or 5 mm.	1.39c	8 15 0	.57c to .58c	2 12 0 to 2 13 0
Sheets, black, 24 gage or 0.5 mm.	1.27c	8 0 0	1.11c to 1.20c	5 1 0 to 5 6 0
Sheets, gal., 24 gage, corr.	1.53c	9 12 6	1.49c	6 15 0
Bands and strips	1.27c	8 0 0	.72c to .74c	3 5 0 to 3 7 6
Plain wire, base	1.51c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.83c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.75c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.68	0 15 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

		£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$10.44	2 18 6	$ 8.25	210(2)	$ 8.76	315	$16.39	69
Basic bessemer pig iron	10.00	2 16 0*	7.27	185(1)	7.23	260	17.94	75.50
Furnace coke	2.32	0 13 0	4.87	124	4.03	145	4.56	19.20
Billets	17.85	5 0 0	14.54	370	10.15	365	22.93	96.50
Standard rails	1.33c	8 7 6	1.25c	697	1.57c	1,210	1.37c	127
Merchant bars	1.05c	6 12 6	.95c	530	.53c	405	1.19c	110
Structural shapes	1.39c	8 15 0	.99c	550	.53c	405	1.16c	107.50
Plates, †¼-in. or 5 mm.	1.39c	8 15 0	1.17c	650	.69c	530	1.37c	127
Sheets, black	1.31c	8 5 0½	1.44c	800‡	.88c	675‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.55c	9 15 0	2.83c	1,570	1.78c	1,370	4.00c	370
Plain wire	1.51c	9 10 0	2.03c	1,130	1.95c	1,500	1.92c	178
Bands and strips	1.51c	9 10 0	1.04c	580	.88c	675	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel Continental usually for basic-bessemer steel

Pacific Coast

Summer Dullness Brings Small Buying Volume—Bridges, Dams and Postoffices Furnish Some Tonnage—Cast Pipe Buying Is In Lessened Volume—Hoover Dam Plate Tonnage Not Let

San Francisco—(*By Air Mail*)—Little of importance transpired in the Pacific Coast iron and steel markets during the past week, most plants ceasing operations Friday to Tuesday. The reinforced concrete bar market was the most active, though awards aggregated less than 1000 tons.

Movement of merchant bar steel continues in unimportant lots. Prices appear firm at 2.10c, c.i.f. Gunn, Carle & Co. booked 120 tons for a dock at Fort Mason, San Francisco, and Kyle & Co. took 100 tons for an addition to the King county hospital, Hanford, Calif. The largest pending project calls for 3837 tons for San Gabriel Dam No. 1, for Los Angeles county, California, bids on which will be opened Aug. 1. Close to 300 tons are involved in five buildings for the Sunnyvale dirigible base, bids July 6. No changes in out-of-stock quotations are noted, San Francisco district prices being 2.50c, base, on carload lots and Los Angeles quotations holding to 2.10c.

Demand for plate material is confined to small lots. Interest continues to center around the final decision on 60,000 tons for the Hoover Dam tunnel outlets. Bids will be opened next month on 400 tons for boilers for Los Angeles. Prices are firm at 2.00c, c.i.f.

Few structural awards were noted. Unnamed interests secured 100 tons for a postoffice at Merced, Calif. Pasadena, Calif., will open bids Aug. 1 for 750 tons of shapes and plates for pipe and gates for the Pine Canyon dam project. New inquiries include 290 tons for trash racks for San Gabriel dam No. 1, Los Angeles, and 233 tons for a bridge in San Joaquin county, Calif. Plain standard shapes hold at 2.10c, c.i.f. while wide flange material is quoted at 2.20c.

Bookings of cast iron pipe were confined to lots of less than 100 tons. No action has yet been taken on 200 tons additional for Hamilton Field, California. The only new inquiry of size calls for 333 tons of 4 to 10-inch pipe for Whittier, Calif., bids on which will be opened July 18. Standard pipe is moving in comparatively small lots, most distributors still having well balanced stocks on hand. No pipe line inquiries of importance have appeared.

Building Permits Fall Off

Seattle — Construction continues slow in the Pacific Northwest. Seattle, with only 349 permits, $494,085, in June, was the third city on the Pacific in valuation totals, June being $145,000 less than May. Seattle's half year total is $3,418,769, against $5,055,735 in the first six months of 1931. In June Portland reported 307 permits, $160,195.

Last week's public works projects in the Northwest numbered 28, totaling over $600,000. This week Washington awarded two highway contracts amounting to $250,000. July will be an active month as several important bridge jobs are included in projects to be awarded. Chelan county, Washington, will open bids July 18 on three concrete bridges. King county, Washington, is considering tenders on the Green river bridge, the Union Bridge Co., Portland, Oreg., being low at $91,449 on steel, 685 tons of structurals and 77 tons of concrete bars. Alternate bids for concrete also were submitted.

Several bridge and crossing span jobs are to be up for figures this month for Washington highway improvement, requiring 250 tons of concrete bars and about 500 tons of structurals. Idaho opened bids at Boise July 8 for a 378-foot concrete bridge at Boise, calling for 225 tons of reinforcing, while the same state in August will receive tenders for the $150,000 steel and concrete bridge planned for the Kootenai river. Northwest Steel Rolling Mills, Seattle, has booked 200 tons of reinforcing for two Eastern Washington highway paving jobs. Hofius Steel & Equipment Co., Seattle, will furnish 25 tons of structurals for the Seattle art museum.

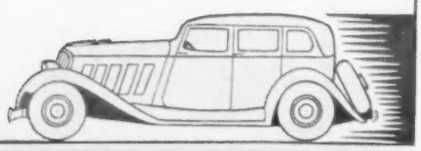
Mill and jobbing prices are unchanged. Wholesalers report slightly better business in June than in May but the firmer price list resulted in improved totals. Business continues in small tonnages out of stock and buyers show slight interest. There is somewhat better inquiry for cast iron pipe. Centralia, Wash., has opened bids for 100 tons of cast iron pipe.

STAMPINGS

These wheels are made from two formed cups electric welded together for use in connection with the new type low pressure tires.

Our plant is equipped to produce stampings of all descriptions. Consult us on your stamping problems.

FALLS STAMPING CO.
Cuyahoga Falls, Ohio



Accuracy-Economy

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	25	7
¾	62	50½	¾	30	13
1—3	64	52½	1—1¼	33	17
			1½—2	37	20

LAP WELD

2	57	45½	2	25	11
2½—6	61	49½	2½—3½	30	15
7—8	58	45½	4—6	32	19
9—10	56	43½	7—8	31	18
11—12	55	42½	9—12	28	13

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+11	+46
¾	60	49½	½	25	9
1—1½	62	51½	¾	30	14
2—3	63	52½	1—2	36	20

LAP WELD

Extra strong, plain ends

2	55	44½	2	31	15
2½—4	59	48½	2½—4	36	22
4½—6	58	47½	4½—6	35	21
7—8	54	41½	7—8	33	19
9—10	47	34½	9—12	23	10
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES
COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 38.40 to 42.40
Six to 24-inch, Chicago..... 34.40 to 38.40
Six-inch and over, N. Y..... 26.00 to 28.00
Four-inch, New York ..... 32.50 to 34.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

Baltimore	2.35c-3.00c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl.	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.00c
St. Paul	2.85c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.00c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.45c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.75c-4.00c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.05c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.05c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	4.50c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

BANDS

Baltimore	3.25c
Boston	3.75c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.65c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

HOOPS

Baltimore	3.25c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.30c
New York	3.75c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

COLD FIN. STEEL
Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.60c
Buffalo	2.95c
Chattanooga*	3.65c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.54c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex, only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	3.95c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

(d) Minus quant. diff.

(e) New mill classif.

‡Domestic bars.

*Plus quan. extras.

**Less than 25 sheets.

*†50 or more bundles.

Machinery

Industrial Demand Unchanged in Face of Low Operations

New York—Machinery and equipment demand continues light, activity being confined largely to government inquiry and awards on contracts for which bids were taken several weeks ago. Awards have included orders to Van Dyck-Churchill Co., Niles Tool Works and Wilson-Brown Inc. Swind Machinery Co., Philadelphia, is low on a milling machine and attachments for delivery to New York or San Francisco, a navy inquiry. H. F. Allen Co. is low on a drill press for Philadelphia. Additional bids close this week and July 19 on navy tools.

Industrial demand for equipment is light as few firms in the East have advance business heavy enough to warrant interest in new tools. In opening bidding recently there has been a wider spread in quotations with some low prices. There is little interest in used tools.

Worcester, Mass.—Machinery buying and inquiry is stagnant, volume being limited largely to government lists and awards in which several New England shops have shared. Pratt & Whitney Co. booked 16 toolroom precision lathes for Wright Field and the Bullard Co. several lathes for the navy, including a turret lathe for Boston. General industrial demand is light and most plants are operating on short schedules with small forces. Textile machinery builders also lack substantial business and inquiry.

Cleveland—A welding equipment manufacturer reports continuation of fairly good sales, with June totals exceeding those of preceding months. Of course, good sales in 1932 would not even be considered poor sales two years ago, but nevertheless the trend is encouraging, according to this interest. Machinery business shows no signs of improvement and although there are numerous sizable purchases contemplated it is doubtful when these needs will be covered, due in general to lack of sufficient funds for new equipment. Used machinery is moving slowly and dealers' warehouses are becoming filled to the bursting point, one leading dealer being forced to store a number of machines in vacant lots adjoining the warehouse.

Pittsburgh—Steel mill equipment and special machinery orders are not as numerous as orders for machine tools which are occasionally placed. Rolling mill equipment has been fairly well covered, in that construction or changes the mills contemplate all have been estimated and quoted by the equipment makers. A considerable volume of such work is awaiting appropriation.

Units of new steel mill equipment are making an occasional appearance in the market. Engineering staffs of equipment builders have perhaps turned a more concerted effort than ever to anticipate customers' wants.

A plan to erect a tin mill at Leechburg, Pa., is being sponsored by local interests with the backing of Pittsburgh capital reported to be not identified with the steel industry. Costs are being estimated at present and a site for the plant has been acquired.

In the machine tool market last week the board of education bought 13 metalworking lathes from a Rockford, Ill., machine tool manufacturer to be used for the local Westinghouse Jr. high school.

Chicago—Sellers of machinery and equipment find difficulty in interesting users in new purchases. Occasional inquiries are being received, but in many cases these are being issued only for price determination purposes and the few orders being placed call for equipment that is needed urgently. Railroads offer but little hope for a stimulation to machine tool activity, inquiries still being lacking. Demand for small tools, after being maintained fairly well during the first few months of the year, has been moderating gradually.

New officers for the Hartford, Conn., chapter of the American Society for Steel Treating have been elected as follows: Chairman, J. H. G. Williams, Henry Souther Engineering Co.; vice chairman, Lewis H. Knapp, Hartford Electric Light Co.; and secretary-treasurer, James Allison, Union Drawn Steel Co.

Construction and Enterprise

New York

ELMIRA—Caledonia Construction Co., New York, at $93,600 was low bidder on a new shop building for the state reformatory here.

NEW YORK—Teco Mfg. Corp. has been incorporated with $10,000 capital to manufacture electrical appliances, by Teleradio Engineering Corp., 484 Broome street.

Pennsylvania

POTTSVILLE—Fishbach Foundry & Engineering Corp. has been incorporated with $25,000 capital to operate a foundry and machine shop, by Edna C. Oakley, 622 North Centre street, Pottsville.

ST. MARYS—Elk Engineering Works will rebuild its pattern shop, recently burned, at estimated cost of $25,000.

Michigan

DETROIT—Water Sanding Disc Co., 712 Twenty-fifth street, has been incorporated with $15,000 capital to manufacture abrasive wheels, grinding, boring and polishing appliances, by L. C. Moss, 13130 Monica avenue.

DETROIT—Anko Door Holder Corp., 1258 Washington boulevard, has been incorporated with $5000 capital to manufacture door holders and accessories, by Clifford W. Rogers, 15575 Cleveland avenue.

DETROIT—Aeronautical Parts Mfg. Co., 4196 Bellevue avenue, has been incorporated with $2000 capital to conduct a general machine shop business, by Gustav Rauhut, 3164 East Hancock avenue.

Indiana

ANDERSON — Guide Lamp Corp. plans to build a 2-story addition to its plant, 50 x 200 feet, and will buy additional toolroom equipment and two 225 horsepower boilers.

INDIANAPOLIS—C. & G. Foundry Co., 1026 Kentucky avenue, will build a 1-story foundry, 160 x 160 feet at Twenty-fifth and Yandes streets, to cost $40,000.

INDIANAPOLIS—Fruit & Produce Packing Inc. has been incorporated with 1000 shares no par value to manufacture machinery for the fruit and vegetable packing industry, by George B. Elliott, Philip A. Hennessee and Philip F. Holton.

Southern States

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids until July 19 for the following: Four grinders and buffers combined, motor-driven, schedule 8326; four motor-driven coil winding ma-

chines, schedule 8327; one cylinder grinding machine, schedule 8342; until July 12 for twelve arc welding sets, schedule 8331.

BATON ROUGE, LA.—Texas Pipe Line Co., Houston, Tex., will build a pumping station at the Mississippi river terminal of its 46-mile pipeline from Port Barre, La., oil field. Oscar Wolf, chief engineer, Texaco building, Houston, Tex., is in charge of construction.

MONROE, LA.—W. I. Neel, city engineer, is preparing plans for construction of a pumping station to replace the former station, destroyed by a river cavein.

NEW ORLEANS—Schaff Ornamental Iron Works Inc. has been incorporated with 1000 shares no par value.

NEW ORLEANS — Southern Boiler Improvement Co. has been incorporated with $1000 capital, by William A. Lifsey, president.

JACKSON, MISS.—Southern Machinery Co. has been incorporated with $5000 capital to operate a foundry and machine shop, by Bernie L. Lauchley.

Missouri

ST. LOUIS—Security Wire Products Co. has been organized to manufacture wire garment hangers, by H. Magidson, 2714 South Second street.

Oklahoma

MIAMI — New Malmsbury Mining Corp. has been incorporated with $10,000 capital to engage in lead and zinc mining, by John D. Mayes, president.

OKLAHOMA CITY — Scott Body Works has been incorporated to build automotive bodies, by R. O. Jones, 3516 North Robinson avenue.

TULSA—Haynes Auto Supply Co. has added a machine shop unit for automotive repair and servicing. W. W. Haynes is president and general manager.

Texas

BALMORHEA — Grenshaw Highway Garage Co. has been incorporated with $7500 capital to operate an automotive repair shop and garage, by Q. H. Crenshaw.

Wisconsin

HARTLAND—Bond issue of $45,000 has been approved, for initial work on new $110,000 municipal waterworks and sewage system. W. W. Parker is village clerk.

MILWAUKEE—Steel Treating Materials Co. has been incorporated with 500 shares no par value to deal in machinery and supplies for treating metals, by Raymond Thiessenhusen, formerly treasurer, Wesley Steel Treating Co., Milwaukee.

PORTAGE—Bids close July 19 with Mrs. Frances Wright, city clerk, for construction of a $60,000 sewage disposal plant from plans by Pearse, Greeley & Hansen, 6 North Michigan avenue, Chicago.

RICHLAND CENTER—City council has voted to delay purchase of 500-horsepower water tube boiler for the municipal generating plant. Bids were opened June 15.

SOLON SPRINGS—Dahlberg Power & Light Co. will start work soon on a hydroelectric generating plant on Eau Claire river, costing about $25,000.

South Dakota

MITCHELL—Chicago, Milwaukee, St. Paul & Pacific railroad, Union Station building, Chicago, will build a machine shop and 2-stall engine house, to cost $25,000.

Dominion of Canada

EDMONDS, B. C.—Shell Oil Co. of British Columbia Ltd. has asked permission from Burnaby municipal council to build a $1,000,000 plant on its Capitol Hill property.

VICTORIA, B. C.—Gen. J. A. Clark, representing British interests, has submitted to federal minister of railways and the provincial minister of public works, a new proposal for a joint highway and railroad toll bridge over Fraser river near New Westminster, B. C.

VANCOUVER, B. C.—Victoria Gas Co. plans extensions to cost $80,000, subject to approval of municipal authorities.

ST. CATHERINES, ONT.—Fire damaged the plant of the McKinnon division of the General Motors Corp., starting in the heat treating department.

New Trade Publications

SCREENS — Traylor Vibrator Co., Denver, Colo., has published a four-page folder illustrating four types of screens for various industrial uses.

AFTERCOOLERS—Schutte & Koerting Co., Philadelphia, has issued bulletin 12-G on its aftercooler for compressed air, with illustrations and technical data.

DIE STEEL—Physical properties and characteristics of an air-hardened die steel are contained in a recent four-page leaflet published by the Ludlum Steel Co., Watervliet, N. Y.

GRAPHIC METERS — Esterline-Angus Co., Indianapolis, announces in a current bulletin a new and redesigned complete line of graphic meters in various types.

LUBRICATION — New Departure Mfg. Co., Bristol, Conn., has prepared a booklet on lubrication of its anti-friction ball bearings, with diagrams and full description of proper methods.

PIPE TOOLS—A leaflet by the Borden Co., Warren, O., is being distributed, with a listing of its Beaver pipe tools,

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CADMIUM PLATING SERVICE—Udylite Process Co., 3939 Bellevue avenue, Detroit, in a current booklet explains its service, which goes with its sales of cadmium for plating.

INDUCTION MOTORS — Reliance Electric & Engineering Co., Cleveland, has issued bulletin No. 111 on its squirrel-cage induction motors, with full illustration.

ARC WELDER — Harnischfeger Corp., Milwaukee, has issued a bulletin on its Hansen arc welder, manufacture of which it recently took over. Features of this welder are described and illustrated.

BUCKETS — Wellman Engineering Co., Cleveland, in a current bulletin features the Williams bucket for digging, rehandling and other uses. Features of construction are illustrated and advantages described.

DUST COLLECTION — Blaw-Knox Co., Pittsburgh, has issued catalog No. 1391 on its dust collectors of various types. Illustrations and diagrams supplement the text and indicate operation of these units.

STEAM—Superheater Co., 60 East Forty-second street, New York, has issued a book of steam tables, showing the properties of saturated and superheated steam and including a Mollier diagram.

HEATING SYSTEM—A new type of heating boiler is described and illustrated in a recent folder of the O. W. Werntz Foundry & Machine Works, Warsaw, Ind. Radiators manufactured by this company also are shown.

WIRE ROPE—A book on the splicing of wire rope has been published by John A. Roebling's Sons Co., Trenton, N. J. It is illustrated to show each step in the various splices and reasons are given for each operation.

ELECTRICAL RECORDERS—Esterline-Angus Co., Indianapolis, is distributing Bulletin No. 432, containing results of a survey in a power plant by means of electrical recording instruments with resulting large savings in fuel and power.

VENTILATING FANS—Bulletin F-5 by the L. J. Wing Mfg. Co., 154 West Fourteenth street, New York, features its safety ventilating fans, with tables of capacities, dimensions and prices. Illustrations and diagrams show construction and operation.

GENERATING SETS—The Troy Engine & Machine Co., Troy, Pa., has published a bulletin entitled "How 6 Representative Concerns Cut Power Costs." The booklet includes descriptions of steam engines and generating sets built by that company.

MIXERS — Lancaster Iron Works Inc., Lancaster, Pa., has issued bulletin No. 70, announcing it now is building Lancirick mixers under Eirich patents. The mixer is designed to give a homogeneous mixture of any material in a minimum of time.

STAINLESS STEEL CASTINGS—Cooper Alloy Foundry Co., Elizabeth, N. J., has issued a bulletin on stainless steel castings, including a table giving physical properties in comparison with brass, bronze, monel metal and other materials.

SURFACE GRINDERS — Blanchard Machine Co., Cambridge, Mass., has issued a catalog covering two types of its automatic surface grinders. It describes and illustrates the single and double-spindle machines, shows typical work and gives production data.

VIBRATING SCREENS — Link-Belt Co., Chicago, has published folder No. 1262 describing its positive-drive type and its unbalanced-pulley type vibrating screens for heavy-duty service. Either of the screens is supplied with single or multiple screening decks.

AIR FILTERS—American Air Filter Co. Inc., Louisville, Ky., has issued a bulletin on its air filters and its system of dust engineering. The chapters take up in detail various industrial dust problems and give remedies. Illustrations add much to the text.

CAPACITOR MOTOR—Ideal Electric Co., Mansfield, O., in bulletin No. 210 furnishes full description and details of its polyphase capacitor motor and capacitor equipment. Diagrams show characteristic curves and advantages of this form of motor.

WELDING FITTINGS — Bonney Forge & Tool Works, Allentown, Pa., in Bulletin No. WT17 covers the engineering principles of its weldolets and thredolets, with working data, tables of sizes and illustrations of typical installations.

GEAR UNITS — Farrel-Birmingham Co. Inc., 415 Vulcan street, Buffalo, N. Y., in Bulletin No. 425 presents its high-speed gear units, for increasing or reducing speed of driven unit. The bulletin is illustrated and includes dimension data sheets and horsepower rating tables.

CAPACITOR MOTORS—Wagner Electric Co., 6391 Plymouth avenue, St. Louis, has issued several bulletins on its capacitor motors. They are condenser-start, condenser-run, split phase motors with switch and auto transformer to vary condenser capacity. Both rubber and rigid-mounted are shown.

ELECTRIC APPLIANCES — Square D Co., Milwaukee, has issued an industrial newspaper under the name *Industrial News*, for distribution to manufacturers, contractors, dealers, jobbers and distributors. Further issues depend on circumstances. Copies are free on application.

WELDING—Lukenweld Inc., Coatesville, Pa., has issued a bulletin on its method of welded construction in the manufacture of parts for machinery and equipment. A wide variety of parts produced by this method is shown in illustrations and the process and its results are described.

CORROSION RESISTANCE — Two bulletins have been issued by the Duriron Co., Dayton, O., No 514 being devoted to a new line of pumps valves and fittings in chrome-nickel alloy steels. No. 171 gives physical and chemical data on corrosion resistant alloys.

NICKEL STEEL — An illustrated miniature newspaper devoted to nickel alloy steels has been founded by the International Nickel Co., New York, to be issued twice a month. It will contain technical, semi-technical and news articles on production, treatment and uses of these steels.

STEEL FLOORING—H. H. Robertson Co., Grant building, Pittsburgh, has issued a catalog of its keystone beam steel floor recently perfected after research by this company and the Mellon Institute of Industrial Research. Descriptions, data and illustrations are fully covered.

BOILER NOZZLES—Worth Steel Co., Claymont, Del., has compiled and published its first catalog on plate steel boiler nozzles, designated as No. 1. It is well illustrated and contains much information and many tables of data on various types of nozzles, of value to boilermakers, tank and pressure vessel builders.

OIL BURNER CONTROLLERS—Bulletin No. 1010 by the Johnston Mfg. Co., 2825 East Hennepin avenue, Minneapolis, is devoted to its valveless automatic controllers for atmosphere and temperature in oil-burning furnaces. It shows duplex units for multiple-burner furnaces and pneumatic remote control. It is well illustrated.

CENTRIFUGALLY CAST BRONZE—Shenango-Penn Mold Co., Dover, O., has published Bulletin No. 131 devoted to information on the centrifugally cast bronze for propeller shaft sleeves, pump liners, bearings, roll covers, and bushings, which are manufactured by that company. Views of the casting department also are shown.

SUCTION BLAST NOZZLES—The Direct Separator Co., Inc., Syracuse, N. Y., has published a bulletin illustrating and describing its line of suction blast nozzles for cleaning iron, steel and brass castings, etc. Divide Air Separators for removing water and oil in compressed air lines are described in the second section of the bulletin.

BAFFLE WALLS—Boiler Engineering Co., 744 Broad street, Newark, N. J., has issued a folder on its baffle wall with expansion joints. Proper and improper methods of building baffles are illustrated. Instances of increased efficiency following changes are presented. Operating charts are reproduced showing a strong drop in flue gas temperature after rebuilding.

GRINDING WHEELS—"Factors Affecting Grinding Wheel Selection" is the title of a booklet issued by the Norton Co., Worcester, Mass. Information includes composition and characteristics of grinding wheels, Norton method of marking grinding wheels, fundamental factors for determining grinding wheel specifications, and the selection of a grinding wheel.

PROPELLER FANS — Ilg Electric Ventilating Co., 2850 North Crawford Ave., Chicago, has prepared a catalog describing its line of fans and blowers for ventilating practically any type of building or industrial process. Information on capacities and specifications also is given. The company has prepared a folder illustrating its portable type air cooling machine.

ALUMINUM - SILICON ALLOY — Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, England, has published a booklet on its new aluminum silicon alloy. Information represented includes physical properties, composition and structure, strength, ductility, resistance to corrosion, foundry and working properties, machinability, etc. The booklet is well illustrated with micrographs, photographs of fractures and various types of castings made from the alloy.